

Clinton, Massachusetts

Streetscape Improvements High Street and Church Street

July 2020

BID AND CONTRACT DOCUMENTS

DPW DIRECTOR
Christopher McGown



Professional Registration



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TABLE OF CONTENTS

<u>Section Number</u>	<u>Title</u>	<u>Page No.</u>
BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT		
Division 0 Documents		
00100	Notice to Bidders	00100-1 to 00100-2
00200	Information for Bidders	00200-1 to 00200-13
00300	Bid Proposal	00300-1 to 00300-30
00400	Bid Bonds	00400-1 to 00400-2
00500	Contract Agreement	00500-1 to 00500-26
00600	Contract Bond	00600-1 to 00600-9
00700	General Conditions	00700-1 to 00700-8
00800	Supplementary Condition	00800-1 to 00800-3
SPECIFICATIONS		
Division 1 General Requirements		
01010	Summary of Work	01010-1 to 01010-2
01025	Measurement and Payment	01025-1
01050	Field Engineering	01050-1
01200	Project Meetings	01200-1
01300	Submittals	01300-1 to 01300-3
01400	Quality Control	01400-1
01410	Testing Laboratory Services	01410-1 to 01410-2
01510	Temporary Utilities	01510-1
01560	Temporary Controls	01560-1 to 01560-3
01570	Traffic Regulations	01570-1 to 01570-2
01600	Materials and Equipment	01600-1 to 01600-2
01800	Maintenance	01800-1 to 01800-2
Division 2 Roadway Work		
02500	Special Provisions	02500-1 to 02500-16
02550	Construction Specifications	02550-1 to 02550-71
APPENDIX		
A. Prevailing Wage Rates		
B. Pavement Cores and Location Map		
C. Existing Lighting System Electrical Plan		
D. Sidewalk Vault Photographs		
E. RAM Report – 329 High Street		

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DIVISION 0

SECTION 00100

NOTICE TO BIDDERS

Town of Clinton, Massachusetts

Streetscape Improvements High Street and Church Street

The Town of Clinton, Massachusetts, acting through its Department of Public Works, invites sealed bids for "Town of Clinton, Massachusetts, Streetscape Improvements High Street and Church Street", in accordance with the Contract Documents prepared by BETA Group, Inc., Consulting Engineers, 315 Norwood Park South, Norwood, Massachusetts, 02062.

Sealed bids will be received by the Town of Clinton, at the Office of the Department of Public Works, Town Hall, 242 Church Street, Clinton, MA 01510, until August 6, 2020 at 11:00 AM, at which time and place the Bids will be publicly opened and read aloud.

Contract Documents may be obtained from Accent Printing. Electronic copies can be downloaded from their web site at www.accentblueprints.com for no charge. Hard copies can be obtained for a fee. Contact Accent Printing for more information at 978-362-8038.

Contract Documents may be examined, but not obtained, at the Department of Public Works Office, Town Hall, 242 Church Street, Clinton, MA 01510

The location, general characteristics, and principal details of the work are indicated in a set of drawings, entitled "Town of Clinton, Massachusetts, Streetscape Improvements High Street and Church Street.

The work in this Contract includes, but is not limited to, roadway, streetscape, and sidewalk improvements along a section of High Street from Union Street to Water Street, and a section of Church Street from Walnut Street to School Street. Also included are geometric modifications to curb and sidewalk for the installation of curb extensions, crosswalks, and ADA ramps, new decorative lighting, an irrigation system for the proposed hanging plants, trees, and other streetscape features and drainage improvements.

The work includes full-depth pavement reconstruction, hot mix asphalt paving, granite curbing, concrete sidewalks, wheelchair ramps, ornamental street lighting, irrigation system, streetscape improvements, loam and seed, safety controls and signing for construction operations and other incidental items included in the contract documents and specifications.

This project is being funded by the Town of Clinton. To bid on this project, Contractors must be prequalified in accordance with 720 CMR 5.00, Prequalification of Contractors by MassDOT in the Category of "Highway Construction." "Informational Only" copies of the Contract Documents will be available to any individual or firm.

Bid Security: Certified, treasurer's or cashier's check or bid bond in the sum of five (5) percent of the Total Bid is required.

The successful bidder will commence the work required by the contract documents as specified in the written notice to proceed. and will fully completed by October 30, 2021, unless the Contract is extended.

A complete set of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of the incomplete sets of Bidding Documents or for modifications to the Bidding Documents including electronic conversion.

Direct all inquiries to Christopher McGown at: cmcgown@clintonma.gov

All Bids for this project are subject to applicable bidding laws of Massachusetts, including General Laws Chapter 30, Section 39M as amended.

The bidders attention is particularly called to the requirements and conditions of employment to be observed and minimum wage rates to be paid under this Contract as determined by the Department of Labor and Industries under provisions of the Massachusetts General Laws Chapter 149, Section 26-27, inclusive, as amended.

The minimum combined MBE/WBE participation goal of 0% is applicable to this project.

No Bidder may withdraw his bid within ninety (90) days after the actual date of the opening of the received bids.

The successful Bidder must furnish 100 percent Performance and Labor and Materials Bonds.

The Owner and Engineer, being considered the sole and only judge, reserves the right to waive any informality in, or to reject, any or all bids, should the Owner deem it to be in the public's best interest to do so.

**Christopher McGown
Town of Clinton, Massachusetts,
Town Hall
242 Church Street
Clinton, Massachusetts 01510**

END OF SECTION

SECTION 00200**INFORMATION FOR BIDDERS**

- 1.01 Receipt and Opening of Bids
- 1.02 Location and Work to be Done
- 1.03 Contract Documents
- 1.04 Payments for Drawings and Documents
- 1.05 Questions Regarding Drawings and Documents
- 1.06 Pre-Bid Conference
- 1.07 Bidders to Investigate
- 1.08 Information Not Guaranteed
- 1.09 Conditions of Work
- 1.10 Blank Form for Bid
- 1.11 Withdrawal of Bids
- 1.12 Bid Security
- 1.13 Interested Parties to Contract
- 1.14 Ability and Experience of Bidder
- 1.15 Bids
- 1.16 Comparison of Bids
- 1.17 Items and Indeterminate Items
- 1.18 Reduction in Scope of Work
- 1.19 Contract Bonds
- 1.20 Power of Attorney
- 1.21 Execution of Agreement
- 1.22 Insurance Certificates
- 1.23 Time for Completion and Liquidated Damages
- 1.24 Laws and Regulations
- 1.25 Work on State, Municipal, and Private Property
- 1.26 State Sales and Use Tax
- 1.27 Manufacturer's Experience
- 1.28 Protection of Lives and Health
- 1.29 Nondiscrimination in Employment
- 1.30 Sequence of Operations
- 1.31 Wetlands and Waterways
- 1.32 Massachusetts Wage Rates

1.01 RECEIPT AND OPENING OF BIDS

- A. The Town of Clinton, Massachusetts, herein called the Owner, acting through its Department of Public Works invites sealed bids for the “**Streetscape Improvements High Street and Church Street**” project in accordance with the Contract Documents prepared by BETA Group, Inc., Consulting Engineers, 315 Norwood Park South, Norwood, Massachusetts, 02062

- B. Such Bids, submitted in sealed envelopes plainly marked in the upper left-hand corner with the Bidder's name and address, plainly marked in the lower left-hand corner with the date and time of opening, are to be addressed to:

Department of Public Works
Town of Clinton, Massachusetts
Town Hall
242 Church Street
Clinton, Massachusetts, 01510
Attention: Christopher McGown

Endorsed: **"Streetscape Improvements High Street and Church Street"**.

Delivered by: 11:00 AM local time on August 6, 2020 at which time and place, said Bids will be publicly opened and read aloud.

- C. The Owner may consider informal, any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any and all bids. Conditional or qualified Bids will not be accepted. Any Bid received after the time and date specified shall not be considered. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the Owner and the Bidder.

1.02 LOCATION AND WORK TO BE DONE

- A. The location, general characteristics, and principal details of the Work are indicated in a set of drawings, entitled **"Streetscape Improvements High Street and Church Street"**
- B. Details and the Drawings listed above are the Contract Drawings, sometimes referred to herein as the "Drawings".
- C. Additional drawings showing details in accordance with which the Work is to be done will be furnished from time to time by the Engineer, if found necessary, and shall then become part of the Drawings.
- D. The Contractor shall furnish all labor, services, materials, equipment, plant machinery, apparatus, appliances, tools, supplies and all other things necessary to perform all work required for the completion of each item of the Work and as herein specified.
- E. The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described but shall include all incidental work necessary or customarily done for the completion of that item.

1.03 CONTRACT DOCUMENTS

- A. The Contract Documents may also be examined, but not obtained, during regular business hours, at offices of the Department of Public Works, Town of Clinton, 242 Church Street, Clinton, Massachusetts, 01510.

1.04 PAYMENT FOR DRAWINGS AND DOCUMENTS

- A. N/A
- B. N/A

1.05 QUESTIONS REGARDING DRAWINGS AND DOCUMENTS

- A. In general, no answer will be given to prospective bidders in reply to an oral question of the intent or meaning of the Drawings or other Contract Documents, or the equality or use of products or methods other than those designated or described on the Drawings or in the Specifications. Any information given to bidders, other than by means of the Drawings and other Contract Documents, including Addenda, as described below, is given informally, for information and the convenience of the bidder only and is not guaranteed. The bidder agrees that such information shall not be used as the basis of, nor shall the giving of any such information entitle the bidder to assert any claim or demand against the Owner or the Engineer on account thereof.
- B. To receive consideration, such questions shall be submitted in writing or emailed to the Engineer (for this purpose, BETA Group, Inc., 315 Norwood Park South, Norwood, MA, 02062 Telephone No. 781-255-1982, or email: tloughlin@beta-inc.com), at least seven calendar days before the established date for receipt of Bids. If the question involves the equality or use of products or methods, it must be accompanied by drawings, specifications, or other data in sufficient detail to enable the Engineer to determine the equality or suitability of the product or method. In general, the Engineer will neither approve nor disapprove products prior to the opening of Bids; such products will be considered when offered by the Contractor for incorporation into the Work.
- C. The Engineer will set forth as Addenda, which shall become a part of the Contract Documents, such questions received as above provided as in his sole judgment are appropriate or necessary and his decision regarding each. At least five days prior to the receipt of Bids, he will send a copy of these Addenda to those prospective bidders known to have taken out sets of the Drawings and other Contract Documents.
- D. The Contractor agrees to use the products and methods designated or described in the Specifications, as maybe amended by Addenda.

1.07 BIDDERS TO INVESTIGATE

- A. Bidders are required to submit their Bids upon the following express conditions, which shall apply to and be deemed a part of every Bid received, viz.: Bidders must satisfy themselves by personal examination of the Work and by such other means as they may wish, as to the actual conditions there existing, the character and requirements of the Work and difficulties attendant upon its execution, and the accuracy of all estimated quantities stated in the Bid.

1.08 INFORMATION NOT GUARANTEED

- A. All information given on the Drawings or in the other Contract Drawings relating to subsurface and other conditions, natural phenomena, existing pipes and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.
- B. It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes or other structures encountered during construction will be the same as those indicated on the Drawings or in the other Contract Documents.
- C. It is agreed further and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner or the Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

1.09 CONDITIONS OF WORK

- A. Each bidder must inform himself fully of the conditions relating to the construction and labor under which the work is now or will be performed; failure to do so will not relieve the successful bidder of his obligation to furnish all materials and all labor necessary to carry out the provisions of the Contract Documents and to complete the contemplated Work for the consideration set forth in his bid. Insofar as possible, the Contractor, in the carrying out of his work, shall employ such methods or means as will not cause any interruption of or interference with: the operation of the existing sewer; traffic; use of existing facilities and utilities; locations of existing utilities and structures affecting the work or other similar conditions at the site; character of equipment and facilities needed preliminary to and during prosecution of the work; requirements of owners and controlling authorities, having jurisdiction over the various lands, existing structures, facilities, and utilities; and all other conditions affecting the work to be done, and the labor and materials needed; and he shall make his bid in sole reliance thereon; and shall

not, at any time after submission of a bid, assert that there was any misunderstanding in regard to the nature or amount of the work to be done.

1.10 BLANK FORM FOR BID

- A. Each bid must be submitted on the prescribed form, accompanied by the Bid Security and any other requested information. All blank spaces for bid prices must be filled in, in ink or typewritten, both in words and numerical figures, and be signed by the bidder with his business address and place of residence. Where both written words and numerical figures are given, the written words shall apply in the event of conflict. All bids shall be prepared in conformity with, and based upon and submitted subject to, all requirements of the Specifications and Drawings, together with all addenda thereto.
- B. Bidders shall not remove and submit the Bid pages separate from the volume of Contract Documents but shall submit their Bids bound with the complete volume of attached Contract Documents, including all pages correctly assembled. All erasures or other changes in the Bid must be properly initialed by an authorized representative of the Bidder.**
- C. Note: The Appendix information does not need to be submitted with Bid Package, but they shall become part of the signed Contract at Award.**

1.11 WITHDRAWAL OF BIDS

- A. Except as hereinafter in this subsection otherwise expressly provided, once his Bid is submitted and received by the Owner for consideration and comparison with other bids similarly submitted, the bidder agrees that he may not and will not withdraw it within Forty-Five (45) consecutive calendar days after the actual date of the opening of Bids.
- B. Upon proper written request and identification, Bids may be withdrawn only as follows:
 - At any time prior to the designated time for the opening of Bids.
 - Provided the Bid has not theretofore been accepted by the Owner, at any time subsequent to the expiration of the period during, which the bidder has agreed not to withdraw his Bid.
- C. Unless a Bid is withdrawn as provided above, the bidder agrees that it shall be deemed open for acceptance until the AGREEMENT has been executed by both parties thereto or until the Owner notifies a bidder in writing that his Bid is rejected or that the Owner does not intend to accept it, or returns his Bid deposit. Notice of acceptance of a Bid shall not constitute rejection of any other Bid.

1.12 BID SECURITY

- A. Each bid must be accompanied by a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company and payable to the order of the Owner, or by a bid bond prepared on the form of BID BOND attached hereto duly executed and acknowledged by the bidder, as Principal, and by a surety company qualified to do business in the State of Massachusetts and satisfactory to the Owner, as Surety. The check or bid bond shall be in the sum of five (5) percent of the total bid and shall be enclosed in the sealed envelope containing the Bid.
- B. Each such check or bid bond may be held by the Owner as security for the fulfillment of the bidder's agreements as hereinabove set forth and as set forth in the BID. Should the bidder fail to fulfill such agreements, his bid check shall become the property of the Owner or if a bid bond was furnished, the bid bond shall become payable to the Owner, as liquidated damages; otherwise, the bid check shall be returned to the bidder as hereinafter provided, or if the security is a bid bond, the bid bond shall become null and void.
- C. Bid checks will be returned to all except the three lowest bidders within five (5) days, Sundays and legal holidays excluded, after the opening of Bids, and to the three lowest bidders within five (5) days, Sunday and legal holidays excluded, after the Owner and the accepted bidder have executed the AGREEMENT. In the event that the AGREEMENT has not been executed by both the accepted bidder and the Owner within 90 consecutive calendar days after the opening of Bids, the bid check will be returned promptly upon demand of any bidder who has not been notified of the acceptance of his Bid.
- D. Bid checks accompanying Bids, which are rejected, will be returned within five (5) days, Sundays and legal holidays excluded, after rejection.
- E. None of the three lowest Bids shall be deemed rejected, notwithstanding acceptance of any Bid, until the AGREEMENT has been executed by both the Owner and the accepted bidder.

1.13 INTERESTED PARTIES TO CONTRACT

- A. The undersigned declares; that the only person interested in this Bid as principals are named herein as such; that no official of the Owner and no person acting for or employed by the Owner is interested directly or indirectly in this Bid, or in any contract which may be made under it, or in any expected profits to arise therefrom; that this Bid is made in good faith, without fraud, collusion or connection with any other person bidding or refraining from bidding for the same work; that he has examined carefully the said instructions and all other documents bound herewith and the Contract Drawings relating to the Contract covered by this Bid and hereby makes them part of this Bid; that he has informed himself fully in regard to all conditions pertaining to the work and place where it is to be done; and that he has

made his own examination and carefully checked his estimates for cost and from them makes this Bid.

1.14 ABILITY AND EXPERIENCE OF BIDDER

- A. No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the Work successfully within the time named. The Owner may make such investigations as it deems necessary to determine the ability of the bidder to perform the work; and the bidder shall furnish to the Engineer and the Owner all such information and data for this purpose as the Engineer and the Owner may request.
- B. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein within the time stated. The Owner's decision or judgment on these matters shall be final, conclusive, and binding for all parties involved.

1.15 BIDS

- A. The Owner reserves the right to waive any informalities in, or to reject any or all Bids which in its sole judgment are either incomplete, conditional, obscure, or not responsive or which contain additions not called for, erasures not properly initialed, alternative, or similar irregularities, or the Owner may waive such omissions, conditions, or irregularities as he may feel appropriate.
- B. Conditional bids will not be accepted. Bidder(s) will be disqualified if more than one proposal is received from an individual, firm, partnership, corporation or association, under the same or different names and such proposals will not be considered.
- C. The Owner reserves the right to reject any or all Bids, should the Owner deem it to be in the public interest to do so.

1.16 COMPARISON OF BIDS

- A. Bids will be compared on the basis of the experience and competence of the bidders and on the basis of the totals of the quantities listed in the proposal under the enumerated items at the unit prices or lump sums bid for these items. The Contract will be awarded to the lowest responsive, responsible and eligible bidder as determined by the Owner and/or its authorized representatives or agents. However, the Owner may reject any and all bids, if it is in the public interest to do so.
- B. The term, "Lowest responsive, responsible and eligible bidder," shall mean the bidder whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the Work; who shall certify that

he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work.

- C. Bids should be made on each separate item of work shown in the bid (proposal) with reasonable relation to the probable cost of doing the work included in such items. The Owner reserves the right to reject, wholly, any bid on which an item or items thereof are obviously unbalanced or appear to the Owner to be so unbalanced as to affect or to be liable to affect adversely any interests of the Owner. The attention of the bidder is called to the fact that unbalancing of bids may adversely affect the Contractor if certain portions for the Work are increased or decreased as provided in the Contract Documents.
- D. A bidder shall state the proposed price for the work by which the bids will be compared. This price is to cover all expenses incidental to the completion of the work in full conformity with the Contract, Specifications, and Drawings. In the event that there is a discrepancy between the unit prices and the extended totals, the unit prices shall govern. In the event that there is a discrepancy between the lump-sum or unit prices written in words and numerical figures, the prices written in words shall govern. No bid will be accepted which does not contain a unit price or lump sum as indicated for each of the applicable items enumerated in the proposal form.

1.17 ITEMS AND INDETERMINATE ITEMS

- A. The Work to be done under this Contract has been divided into parts or items to enable each bidder to bid on different portions of the work in accordance with his estimate of their cost and so that the actual quantity of work executed under each item may be paid for at the price bid for that particular item, even though such quantity may be greater or less than the estimated quantity stated in the BID.
- B. The quantities listed in the bid (proposal) are approximate. The Owner does not expressly or by implication represent that the actual amounts of work will even approximately correspond therewith, but does call particular attention to the uncertainty in the quantities of the work involved which can not be predicted in advance. The work under certain items may be materially greater or less than those given in the Bid as may be necessary in the judgment of the Owner complete the work contemplated in the Contract. Attention is particularly called to the fact that the quantity of work to be done under some bid items may be largely dependent on subsurface ground conditions encountered and, therefore, the quantities of work to be done under the various items may vary substantially from the estimated quantities or may even be omitted.
- C. There may be certain items in the Bid to cover classes of work of possible necessity or work for which it is impractical to estimate approximate quantities. Such items have been marked "Indeterminate". Prices for certain such items have been stipulated in advance by the Owner as stated in the Bid Proposal Form.

- D. Only such quantities of the respective items of work actually performed and accepted will be paid for. An increase or decrease in quantity for any item shall not be regarded as grounds for an increase or decrease in the bid prices.

1.18 REDUCTION IN SCOPE OF WORK

- A. The Owner reserves the right to decrease the scope of the work to be done under this Contract and to omit any work in order to bring the cost within available funds. To this end, the Owner reserves the right to reduce the quantity of any items or omit all of any as set forth in the BID, either prior to executing the Contract or at any time during the progress of the Work. The Owner further reserves the right, at any time during the progress of the Work, to restore all or part of any items previously omitted or reduced. Exercise by the Owner of the above rights shall not constitute any grounds or basis of claim for damages or for anticipated profits on the work omitted.

1.19 CONTRACT BONDS

- A. The Bidder whose Bid is accepted agrees to furnish the Contract Bonds in the forms which follow in Section 00600, titled CONTRACT BONDS, each in the sum of the full amount of the Bid and/or Contract Price as determined by the Engineer, and duly executed and acknowledged by the said bidder as Principal and by a surety company qualified to do business under the laws of Massachusetts and satisfactory to the Owner, as Surety, for the faithful performance of the contract and payment for labor and materials. The premiums for such Bonds shall be paid by the Contractor.
- B. Surety Companies executing the Contract Bonds must also appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (Amended) by the Audit Staff Bureau of Accounts.

1.20 POWER OF ATTORNEY

- A. Attorneys-in-fact, who sign Bid Bonds or Contract Bonds, must file with each Bond a certified and effectively dated copy of their power of attorney.

1.21 EXECUTION OF AGREEMENT

- A. The Bidder whose Bid is accepted will be required and agrees to duly execute the AGREEMENT and furnish the required CONTRACT BONDS within the time limit stated in the Bid after notification that the AGREEMENT is ready for signature.
- B. The Bidder whose Bid is accepted upon his failure or refusal to duly execute the AGREEMENT and furnish the required CONTRACT BONDS within the time

limit stated in the BID, shall forfeit to the Owner as liquidated damages for such failure or refusal, the surety deposited with his BID.

1.22 INSURANCE CERTIFICATES

- A. The Contractor will not be permitted to start any construction work until he has submitted certificates covering all insurances called for under the Agreement, SECTION 00500. The Contractor shall submit said certificates using the forms supplied under said subsection.

1.23 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

- A. The bidder must agree to commence work on or before the date specified in the written "NOTICE TO PROCEED" issued by the Owner, and/or Engineer acting on behalf of the Owner, and to fully complete the project within the time specified in **Table A** of the Agreement, after the date specified in the written "NOTICE TO PROCEED" as stipulated in **Table A** of the AGREEMENT. The bidder must further agree to pay as liquidated damages to the Owner, the sum as specified in **Table A** of the Agreement for each consecutive calendar day thereafter as hereafter provided in the AGREEMENT.

1.24 LAWS AND REGULATIONS

- A. The bidder's attention is directed to the fact that all applicable Federal and State laws, municipal ordinances, and rules and regulations or authorities having jurisdiction over construction of the project, shall apply to the Contract throughout, and shall be deemed to be included in the Contract the same as though herein written out in full.

1.25 WORK ON STATE, MUNICIPAL AND PRIVATE PROPERTY

- A. Particular attention is hereby directed to the fact that portions of the Work included under this Contract maybe be done within the limits of properties that are State-owned, municipal-owned, or privately owned. The Contractor shall be responsible for coordinating the prosecution of the Work of this Contract with the property owner and for providing work in accordance with any additional requirements as specified herein.

1.26 STATE SALES AND USE TAX

- A. Materials and equipment purchased for installation under this Contract are exempt from the Massachusetts Sales Tax. The Contractor shall file for exemption on behalf of the Owner with the State of Massachusetts Department of Taxation as required by law. The exemption from the Sales Tax shall be taken into account by the Contractor during bidding.

1.27 MANUFACTURER'S EXPERIENCE

- A. Wherever it may be written that an equipment manufacturer must have a specified period of experience with his product, equipment which does not meet the specified experience period may be considered by the Owner and/or Engineer if the equipment supplier or manufacturer is willing to provide a sufficient bond or cash deposit as determined by the Owner and/or Engineer for the duration of the specified time period which will guarantee full replacement of that equipment in the event of failure at no additional cost to the Owner.

1.28 PROTECTION OF LIVES AND HEALTH

- A. The project is subject to all of the Safety and Health Regulations as promulgated by the United States Department of Labor (Title 29, Part 1926/1910 CFR, 1985 revisions); the Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.) as supplemented by the Department of Labor Regulations (Title 29 CFR Part 5); and OSHA 2207, 1983 revisions; and all subsequent amendments thereto. Contractors are urged to make themselves familiar with the requirements of these regulations.

1.29 NONDISCRIMINATION IN EMPLOYMENT

- A. Contracts for work under this bid (proposal) will obligate the Contractors and subcontractors not to discriminate in employment practices.
- B. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, handicap, or national origin. The Contractor shall take affirmative action to ensure that applicants are employed, and the employees are treated during employment without regard to their race, color, religion, sex, age, handicap, or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading; demotions, or transfers; recruitment or recruitment advertising, layoffs, or terminations; rates of pay or other forms of compensation; selection for training including apprenticeship; and participation in recreational and education activities. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notice to be provided setting forth the provisions of this non-discrimination clause. The Contractor will in all solicitations or advertisements for employees placed by or on behalf on the Contractor state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, handicap or national origin. The Contractor will cause the foregoing provisions to be inserted in all sub-contracts for any work covered by this Contract so that such provisions will be binding upon each sub-contractor and upon sub-contracts for standard commercial supplies or raw materials.
- C. The Contractor shall keep such records and submit such reports concerning the racial and ethnic origin of applicants for employment and employees as the Owner may require as consistent with Federal and State law. The Contractor agrees to

comply with such rules, regulations, or guidelines as the State of Massachusetts may implement these requirements. The Contractor further warrants that he will comply with the President's Executive Order No. 11246 or any preceding similar Executive Order relating thereto.

- D. Bidders and Contractors must, if required, submit a compliance report (EPA Form 5720-4) concerning their employment practices and policies in order to maintain their eligibility to receive award of the Contract.
- E. Bidders and Contractors must, if required, submit a list of all Subcontractors who will perform work on the project, and written signed statements from authorized agents of labor pools with which they will or may deal with for employees on the work, together with any information to the effect that such labor pools' practices or policies are in conformity with said Executive Order that they will affirmatively cooperate in or offer no hindrance to the recruitment, employment, and equal treatment of employees seeking employment and performing work under this Contract; or a certification as to when such agents or labor pools have failed or refused to furnish them, prior to award of the Contract.
- F. The successful bidder will be required to comply with Equal Opportunity Requirements and to abide by the prevailing wage rates for Public Work Projects for all employees on the job. It is the responsibility of Bidders to inform themselves as to the local labor conditions, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustment of wage rates. Information is available at the Department of Labor.

1.30 SEQUENCE OF OPERATIONS

- A. The Contractor must submit to the Engineer within fourteen (14) calendar days after execution of the Contractor Documents, a sequence of operations, giving detailed plans and schedules of his operation. Said sequence of operations shall be reviewed and must be approved by the Owner and Engineer prior to the start of the Work. The Owner reserves the right to limit or, if found necessary and/or required, delay construction, or certain activities thereof, in certain areas of the Contract should the Owner deem it to be in the public's best interest to do so.
- B. The Contractor shall have no claim for additional compensation or damage on account of any such delays and/or required sequence of operations.
- C. The Contractor shall maintain uninterrupted utility services at all times, and plan his work accordingly.
- D. The Contractor shall coordinate his activities with any other contract and/or contractor to complete the Work as detailed on the Plans and Specifications.

1.31 WETLANDS AND WATERWAYS

- A. Not Applicable

1.32 MASSACHUSETTS WAGE RATES

- A. Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, apply to this project. It is the responsibility of the contractor, before bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract. See the APPENDIX for Prevailing Wage Rates.

END OF SECTION

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SECTION 00300

BID PROPOSAL

To the Town of Clinton, Massachusetts, herein called the "Owner", for:

**Town of Clinton
Streetscape Improvements High Street and Church Street**

The Undersigned, as a bidder herein referred to as singular and masculine, declares as follows:

1. The only parties interested in this BID as Principals are named herein.
2. This BID is made without collusion with any other person, firm, or corporation.
3. No officer, agent, or employee of the Owner is directly or indirectly interested in this bid.
4. He has carefully examined the site of the proposed Work and fully Informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed Work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this bid, and he has carefully read and examined the Drawings, the annexed proposed AGREEMENT and the Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;
5. He understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and conference without any warranty or guarantee, expressed or implied, that the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered will be the same as those shown on the Drawings or in any of the other Contract Documents and he agrees that he shall not use or be entitled to use any such information made available to him through the Contract Documents or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Owner or the Engineer arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and he has made due allowance therefore in this BID;
6. He understands that the quantities of work tabulated in this BID or indicated on the Drawings or in the Specifications or other Contract Documents are only approximate and are subject to increase or decrease as deemed necessary by the Engineer; and he agrees that, if this BID is accepted he will contract with the Owner, as provided in the copy of the Contract Documents deposited in the office of the Engineer, this BID form being part of said Contract Documents, and that he will perform all the work and furnish all the materials and equipment, and provide all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other things required by the Contract Documents in the manner and within the time therein prescribed and

according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefore the lump sum or unit price acceptable to each item of the work as stated in the schedule below. (Note: Bidders must bid on each item. All entries in the entire BID must be made clearly and in ink; prices bid must be written in both words and figures.) In case of discrepancy, the amount shown in words will govern.

(Bidders should insert extended item prices obtained from quantities and unit prices.)

Each bid must be accompanied by a certified treasurer's or cashier's check issued by, a responsible bank or trust company and payable to the order of the **Town of Clinton** or by a bid bond prepared on the form of BID BOND attached hereto duly executed and acknowledged by the bidder, as Principal, and by a surety company qualified to do business in the Commonwealth of Massachusetts and satisfactory to the Owner, as Surety. The check or bid bond shall be in the sum of five percent of the bid and shall be enclosed in the sealed envelope containing the Bid.

The Bidder whose Bid is accepted agrees to furnish the Contract Bonds in the forms which follow in Section 00600, titled CONTRACT BONDS, each in the sum of the full amount of the Bid and/or Contract Price as determined by the Engineer, and duly executed and acknowledged by the said bidder, as Principal, and by a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the Owner, as Surety, for the faithful performance of the Contract and payment for labor and materials. The premiums for such Bonds shall be paid by the Contractor.

The Bidder to be considered responsive shall complete and submit the BID as listed in the bid form.

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the annexed form of AGREEMENT, she/he will accept compensation as stipulated therein in full payment for such extra work.

If this BID is accepted by the Owner, the undersigned agrees to complete the entire work provided to be done under the Contract within the time stipulated in the AGREEMENT.

Should the bidder fail to fulfill any of his/her agreements as herein above set forth, the Owner shall have the right to retain as liquidated damages the amount of the bid check or cash which shall become the Owner's property. If a bid bond was given, it is agreed that the amount thereof shall be paid as liquidated damages to the Owner by the Surety.

Bidder agrees to perform all the work of the BID (sum of totals for each) described in the Contract Documents and Bid Form at the unit price(s)/lump sum(s) as stated in the Bid Form for a total amount of

(\$ _____)

All prices, except at the extended totals, shall be stated in both words and figures. In the event of a discrepancy between the price in words and the price in figures, the written word shall govern. In the event of a discrepancy between mathematical totals and the totals stated, the mathematical totals shall govern.

All prices shall be typewritten or written by hand (printed) in ink.

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BID ITEMS

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
102.2	1	TREE TRIMMING At				
		Per Lump Sum				
102.52	350	TEMPORARY TREE PROTECTION FENCE At				
		Per Foot				
103.	20	TREE REMOVED-DIAMETER UNDER 24 INCHES At				
		Per Each				
120.1	2,700	UNCLASSIFIED EXCAVATION At				
		Per Cubic Yard				
141.1	50	TEST PIT FOR EXPLORATION At				
		Per Cubic Yard				
144.	20	CLASS B ROCK EXCAVATION At				
		Per Cubic Yard				
145.	6	DRAINAGE STRUCTURE ABANDONED At				
		Per Each				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
146.	8	DRAINAGE STRUCTURE REMOVED At				
		Per Each				
151	4,765	GRAVEL BORROW At				
		Per Cubic Yard				
153.	60	CONTROLLED DENSITY FILL - EXCAVATABLE At				
		Per Cubic Yard				
153.2	1	BACKFILL SIDEWALK VOID At				
		Per Lump Sum				
170.	16,580	FINE GRADING AND COMPACTING – SUBGRADE AREA At				
		Per Square Yard				
180.01	1	ENVIRONMENTAL HEALTH AND SAFETY PROGRAM At				
		Per Lump Sum				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
180.02	40	PERSONAL PROTECTION LEVEL C UPGRADE At				
		Per Hour				
180.03	48	LICENSED SITE PROFESSIONAL SERVICES At				
		Per Hour				
181.12	30	DISPOSAL OF REGULATED SOIL – IN-STATE FACILITY At				
		Per Ton				
201.	22	CATCH BASIN At				
		Per Each				
202.	9	MANHOLE At				
		Per Each				
204.	2	GUTTER INLET At				
		Per Each				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
220.11	79	STRUCTURE ADJUSTED At				
		Per Each				
220.21	25	STRUCTURE REBUILT At				
		Per Foot				
220.3	4	DRAINAGE STRUCTURE CHANGE IN TYPE At				
		Per Each				
220.51	15	STRUCTURE REMODELED At				
		Per Each				
222.3	79	FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD At				
		Per Each				
234.06	70	6-INCH HIGH DENSITY POLYETHYLENE (HDPE) DRAIN PIPE At				
		Per Foot				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
238.10	200	10 INCH DUCTILE IRON PIPE At				
		Per Foot				
241.12	250	12 INCH REINFORCED CONCRETE PIPE At				
		Per Foot				
241.18	200	18 INCH REINFORCED CONCRETE PIPE At				
		Per Foot				
358.	15	GATE BOX ADJUSTED At				
		Per Each				
376.1	1	HYDRANT – EXCLUDING COST OF HYDRANT At				
		Per Each				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
381.	20	SERVICE BOX At				
		Per Each				
381.3	65	SERVICE BOX ADJUSTED At				
		Per Each				
402.1	2,105	DENSE GRADED CRUSHED STONE FOR SUB-BASE At				
		Per Ton				
415.1	3,705	PAVEMENT STANDARD MILLING At				
		Per Square Yard				
431.	20	HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE At				
		Per Square Yard				
440.	9,090	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL At				
		Per Pound				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
443.	35	WATER FOR ROADWAY DUST CONTROL At				
		Per MGL				
452.	1,315	ASPHALT EMULSION FOR TACK COAT At				
		Per Gallon				
453.	7,150	HMA JOINT SEALANT At				
		Per Foot				
460.22	1,320	SUPERPAVE SURFACE COURSE – 9.5 (SSC-9.5) At				
		Per Ton				
460.31	1,300	SUPERPAVE INTERMEDIATE COURSE – 12.5 (SIC-12.5) At				
		Per Ton				
460.42	2,600	SUPERPAVE BASE COURSE – 37.5 (SBC 37.5) At				
		Per Ton				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
460.52	40	SUPERPAVE LEVELING COURSE -9.5 (SLC-9.5) At				
		Per Ton				
472.	285	TEMPORARY ASPHALT PATCHING At				
		Per Ton				
506.	3,455	GRANITE CURB TYPE VB - STRAIGHT At				
		Per Foot				
506.1	710	GRANITE CURB TYPE VB - CURVED At				
		Per Foot				
509.	350	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - STRAIGHT At				
		Per Foot				
509.1	40	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - CURVED At				
		Per Foot				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
514.	30	GRANITE CURB INLET - STRAIGHT At				
		Per Each				
515.	2	GRANITE CURB INLET - CURVED At				
		Per Each				
516.	40	GRANITE CURB CORNER TYPE A At				
		Per Each				
594.	4,070	CURB REMOVED AND DISCARDED At				
		Per Foot				
670.	75	FENCE REMOVED AND RESET At				
		Per Foot				
697.1	70	SILT SACK At				
		Per Each				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
701.	5,790	CEMENT CONCRETE SIDEWALK At				
		Per Square Yard				
701.1	570	CEMENT CONCRETE SIDEWALK AT DRIVEWAYS At				
		Per Square Yard				
701.2	135	CEMENT CONCRETE WHEELCHAIR RAMP At				
		Per Square Yard				
702.	30	HOT MIX ASPHALT SIDEWALK OR DRIVEWAY At				
		Per Ton				
706.7	1,150	COBBLESTONE PAVING BAND At				
		Per Square Foot				
707.01	1,800	FLEXIBLE POROUS PAVEMENT At				
		Per Square Foot				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
707.11	4	STEEL BENCH At				
		Per Each				
707.113	4	GRANITE BLOCK A At				
		Per Each				
707.114	10	GRANITE BLOCK B At				
		Per Each				
707.21	6	TRASH RECEPTACLE REMOVED AND RESET At				
		Per Each				
707.9	12	BICYCLE HITCH At				
		Per Each				
748.	1	MOBILIZATION At				
		Lump Sum				
762.	65	HANGING PLANT IRRIGATION At				
		Per Each				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
762.1	1	IRRIGATION SYSTEM At				
		Per Lump Sum				
762.12	1	IRRIGATION SYSTEM CONTROL BOX At				
		Per Each				
772.338	10	CYPRESS – BALD 16-18 FEET At				
		Per Each				
775.443	14	LOCUST – HONEY – ‘HALAKA’ THORNLESS 2.5-3 INCH CALIPER At				
		Per Each				
777.139	6	OAK – PIN – ‘PRINGREEN’ GREEN PILLAR 2.5-3 INCH CALIPER At				
		Per Each				
777.678	6	SWEETGUM – COLUMNAR 2.5-3 INCH CALIPER At				
		Per Each				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
778.387	8	CHERRY – SARGENT COLUMNAR 2.5-3 INCH CALIPER At				
		Per Each				
783.641	9	ZELKOVA – ‘GREEN VASE’ 2.5-3 INCH CALIPER At				
		Per Each				
786.081	22	JUNIPER – BAR HARBOR 15-18 INCH At				
		Per Each				
787.246	6	YEW – HICK’S 4-5 FOOT At				
		Per Each				
789.731	6	CARYOPTERIS – ‘BLUE MIST BLUEBEARD 3 GALLON At				
		Per Each				
796.424	193	DWARF FOUNTAIN GRASS – ‘HAMELIN’ 3 GALLON At				
		Per Each				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
796.427	58	FEATHER REED GRASS 2 GALLON At				
		Per Each				
796.446	277	LILLYTURF 1 GALLON At				
		Per Each				
796.763	263	DAYLILLY – ‘STELLA D’ORO’ 1 GALLON At				
		Per Each				
796.828	136	CATMINT – ‘WALKERS LOW’ 1 GALLON At				
		Per Each				
801.22	600	2 INCH ELECTRICAL CONDUIT TYPE NM – (DOUBLE) At				
		Per Foot				
801.24	500	2 INCH ELECTRICAL CONDUIT TYPE NM – (4 BANK) At				
		Per Foot				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
801.26	150	2 INCH ELECTRICAL CONDUIT TYPE NM – (6 BANK) At				
		Per Foot				
804.2	5,600	2 INCH ELECTRICAL CONDUIT TYPE NM – PLASTIC (UL) At				
		Per Foot				
811.91	10	LIGHTING HANDHOLE TYPE A At				
		Per Each				
811.92	30	LIGHTING HANDHOLE TYPE B At				
		Per Each				
812.09	65	LIGHT STANDARD FOUNDATION PRECAST At				
		Per Each				
819.831	100	WIRE LOOP INSTALLED IN ROADWAY At				
		Per Foot				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
821.111	59	DECORATIVE LIGHT POLE AND LUMINAIRE TYPE A At				
		Per Each				
821.112	6	DECORATIVE LIGHT POLE AND LUMINAIRE TYPE B At				
		Per Each				
823.61	1	HIGHWAY LIGHTING LOAD CENTER NO. 1 At				
		Per Lump Sum				
823.62	1	HIGHWAY LIGHTING LOAD CENTER NO. 2 At				
		Per Lump Sum				
823.71	30	HIGHWAY LIGHTING POLE AND LUMINAIRE REMOVED AND STACKED At				
		Per Each				
832.	275	WARNING-REGULATORY AND ROUTE MARKER –ALUMINUM PANEL (TYPE A) At				
		Per Square Foot				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
847.1	24	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL At				
		Per Each				
852.	825	SAFETY SIGNING FOR TRAFFIC MANAGEMENT At				
		Per Square Foot				
852.11	800	TEMPORARY PEDESTRIAN BARRICADE At				
		Per Foot				
852.12	4	TEMPORARY PEDESTRIAN CURB RAMP At				
		Per Each				
853.1	4	PORTABLE BREAKAWAY BARRICADE TYPE III At				
		Per Each				
854.036	3,200	TEMPORARY PAVING MARKINGS – 6 INCH (TAPE) At				
		Per Foot				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
854.1	500	PAVEMENT MARKING REMOVAL At				
		Per Square Foot				
856.	1,080	ARROW BOARD At				
		Per Day				
856.12	1,080	PORTABLE CHANGEABLE MESSAGE SIGN At				
		Per Day				
859.	27,000	REFLECTORIZED DRUM At				
		Per Day				
866.106	5,000	6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) At				
		Per Foot				
866.112	2,400	12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) At				
		Per Foot				

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BID ITEMS (Continued)

Item No.	Approx. Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
867.106	5,000	6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC) At				
		Per Foot				
874.	26	STREET NAME SIGN At				
		Per Each				
874.51	1	MISCELLANEOUS SIGNS REMOVED AND DISCARDED At				
		Per Lump Sum				
880.991	1	SIDEWALK VAULT MODIFICATION At				
		Per Lump Sum				
881.	1	CONCRETE RAMP AND ADA RAILING At				
		Per Lump Sum				

(Note: All entries in the must be made clearly and in ink. Bid prices must be written in both words and numerals.)

TOTAL OF BID:

Total Bid in figures \$ _____

Total Bid in words _____

\$ _____

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The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the annexed form of AGREEMENT, he will accept compensation as stipulated therein as full payment for such extra work.

If the Bid is accepted by the OWNER, the undersigned agrees to commence work under this Contract on a date to be specified in a written "Notice to Proceed" by the Owner and complete the entire work provided to be done under this Contract within the time stipulated in **Table "A"** of the AGREEMENT. If this bid is accepted by the Owner, the undersigned, also agrees to comply with the provisions of Section 1.14 "Liquidated Damages" and Table A of the Agreement.

As provided in the INFORMATION FOR BIDDERS, the bidder hereby agrees that he will not withdraw this BID, within 90 consecutive calendar days after the actual date of the opening of Bids, and that, if the Owner shall accept this BID, the bidder will duly execute and acknowledge the AGREEMENT and furnish, duly executed and acknowledged, the required CONTRACT BONDS within fourteen (14) consecutive calendar days after notification that the AGREEMENT and other Contract Documents are ready for signature.

Should the bidder fail to execute any of his agreements as hereinabove set forth, the Owner shall have the right to retain as liquidated damages, the Bid Security attached in the sum of (5 percent of Total Bid) _____ Dollars, (\$ _____) which shall become the Owner's property for the delay and additional expense to the Owner caused thereby. If a bid bond was given, it is agreed that the amount thereof shall be paid as liquidated damages to the Owner by the Surety. (Bidder must fill in this blank.)

The bidder hereby acknowledges the receipt of, and has included in this BID, the following Addenda:

(To be filled in by Bidder if Addendums are issues.)

Addendum No. _____, dated _____

Addendum No. _____, dated _____

Addendum No. _____, dated _____

The bidder, by submittal of this BID, agrees with the Owner that the amount of the bid security deposited with this BID fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the bidder to fulfill his agreements as above provided.

(SEAL)

(Name of Bidder)

By

(Signature and title of authorized representative)

(Business address)

(City and State)

Date

The bidder is a corporation incorporated in the State (or Commonwealth) of _____ - a partnership - an individual. (Bidder must add and delete as necessary to make this sentence read correctly.)

(Note: If the bidder is a corporation, affix corporate seal and give below the names of its president treasurer, and general manager, if any; if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address, if different from business address.)

The required names and addresses of all persons interested in the foregoing Bid, as Principals, are as follows:

(Add supplementary page if necessary)

**CERTIFICATE OF AUTHORIZATION
FOR
BIDDING REPRESENTATIVE**

(Note: Bidder must complete for certification of authorized representative signing Bid.)

At a duly authorized meeting of the Board of Directors of the

_____ held on _____,
(Name of Corporation) (Date)

at which all the Directors were present or waived notice, it was voted that

_____ (Name of Authorized Representative) _____ (Title)

of this company shall be, and hereby is, authorized to execute bidding documents, contracts and bonds in the name and on behalf of said company, and to affix the corporate seal thereto, and such execution of any contract obligation in this company's name on its behalf of such

_____ under seal of the company shall be valid and binding upon this company.
(Title)

A true copy

ATTEST _____
(Clerk)

Place of Business _____

I hereby certify that I am the clerk of the _____
(Name of Corporation)

_____, that _____
(Name of Authorized Representative)

is the duly elected _____ of said company, and that the
(Title)

above vote has not been amended or rescinded and remains in full force and effect as of the date of this contract.

Corporate
_____ Seal
(Clerk)

STATEMENT OF BIDDERS' QUALIFICATIONS

The following shall accompany the bid and is required as evidence of the bidder's qualifications to perform the work, as bid upon, in accordance with the contract drawings and specifications. This statement must be notarized. All questions must be answered. Additional data may be submitted on separate attached sheets.

1. Name of Bidder_____
2. Permanent Main Office Address_____
3. Official Mailing Address for This Contract_____
4. When Organized?_____
5. Where Incorporated, if a Corporation_____
6. Years Contracting under Present Name_____
7. List contracts on hand, and those completed similar in nature to this kind of project.

Owner	Engineer	Contract	Description	Contract Amount	Completion Date
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

8. List any work the firm has failed to complete, state where and why.

9. If you have ever defaulted on any contract, state where and why.

List full names and residences of all principals (i.e. Officers, Directors, Partners, Owners) interested in this bid.

Name	Residence	Title	Firm

11. State name(s) and qualifications of resident supervisor(s) for this project.

12. List major equipment available for this project and identify ownership or rental.

13. Will you furnish a detailed financial statement and other information, requested by the Owner?

14. List bank references for verifying financial ability of your company.

Name	Address

15. The undersigned hereby authorized and requests any person, firm or corporation, to furnish all information requested by the Owner and/or its designated agents relative to the recitals comprising this Statement of the Bidder's Qualifications.

Dated at _____ this _____ day of _____ 20____.

(Name of Bidder)

By: _____

(Title)

State of _____

County of _____

_____ being duly sworn in person, deposes and says

that he is _____ of _____,
(Title) (Name of Bidder)

that he is the firm's duly authorized agent to execute these contract documents, and that the answers to the foregoing questions and all statements therein contained are correct and true.

Subscribed and sworn to before me this _____ day of _____ 20____.

(SEAL)

(Notary Public)

(My Commission Expires)

STATEMENT OF PROPOSED SUBCONTRACTORS

The following shall accompany the bid and is required as evidence of the bidder's qualifications to perform the work as bid upon, in accordance with the contract drawings and specifications. The Bidder must state the names and appurtenant information of all major subcontractors he proposed to use to complete the work as bid upon. Additional data may be submitted on separate attached sheets.

If subcontractors are not to be used to complete the Work and/or any portion thereof, as herein bid upon, the Bidder must acknowledge by writing "NONE" _____.

Description of Work _____

Approximate percentage of Total Bid _____

Proposed Subcontractor, Name _____

Address _____

Description of Work _____

Approximate percentage of Total Bid _____

Proposed Subcontractor, Name _____

Address _____

Description of Work _____

Approximate percentage of Total Bid _____

Proposed Subcontractor, Name _____

Address _____

Bidder to insert description of work, percentage of Total BID, and subcontractors' names as may be required.

This is to certify that all names of the above-mentioned subcontractors are submitted with full knowledge and consent of the respective parties.

The Bidder warrants that none of the proposed subcontractors have any conflict of interest as respects this contract.

Date _____

Bidder

(Name of Bidder)

By

(Signature)

(Title)

(Business Address)

(City and State)

END OF SECTION

SECTION 00400**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned (Insert Name of Bidder)
_____, as Principal, and (Insert Name of Surety)
_____, as Surety, are hereby held and
firmly bound and obligated unto the Town of Clinton, Massachusetts, as Owner, in the sum
of _____ Dollars (\$ _____),
as liquidated damages for payment of which, well and truly to be made, we hereby jointly and
severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to the Town of Clinton, Massachusetts a certain Bid attached hereto and hereby made a part hereof, to enter into a contract in writing, hereinafter referred to as the "AGREEMENT" and/or "Contract", for "Town of Clinton, Massachusetts, High Street and Church Street".

NOW THEREFORE,

- (a) If said BID shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,
- (b) If said BID shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or Contract and for the payment for labor and materials furnished for the performance of the AGREEMENT and/or Contract,

then this obligation shall be void, otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

The Surety, for value received, hereby agrees that the obligations of said Surety and its bond shall in no way be impaired or affected by any extensions of the time with which such BID may be accepted, and said Surety does hereby waive notice of any such extensions.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, have duly executed this bond on the _____ day of _____, 20 _____.

(SEAL)

(Name of Principal) L.S.

BY: _____
(Signature)

(Title)

(Name of Surety (Seal)

BY: _____
(Signature and Title)

BY: _____
Attorney-In-Fact

Sealed and delivered in
the presence of:

IMPORTANT: Surety Companies executing BONDS must appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts and be authorized to transact business in the state where the PROJECT is located.

If the Bond is signed on behalf of the Surety by an Attorney-In-Fact, there should be attached, a duly certified copy of his power of attorney showing his authority to sign such Bond.

END OF SECTION

SECTION 00500**CONTRACT AGREEMENT****TOWN OF CLINTON, MASSACHUSETTS****STREETSCAPE IMPROVEMENTS HIGH STREET AND CHURCH STREET**

THIS AGREEMENT, is executed this _____ day of _____ in the year Two Thousand and Twelve (herein referred to as the "AGREEMENT") by and between the Town of Westwood, Massachusetts, party of the first part, and _____ (Name of Contractor) party of the second part.

WITNESSETH, that the parties to these presents, each in consideration of the undertakings, promises, and agreements on the part of the other herein contained, have undertaken, promised, and agreed and do hereby undertake, promise, and agree, the party of the first part for itself, its successors and assigns, and the party of the second part for himself and his heirs, executors, administrators, successors and assigns, as follows:

1.01	Definitions	1.27	Changes Not to Affect Bonds
1.02	The Contract Documents	1.28	Claims for Damages
1.03	Obligations and Liability of Contractor	1.29	Abandonment of Work or Other Default
1.04	Authority of the Engineer	1.30	Prices for Work
1.05	Supervision of Work	1.31	Moneys May Be Retained
1.06	Insurance	1.32	Formal Acceptance
1.07	Patents	1.33	Progress Estimates
1.08	Compliance with Laws	1.34	Partial Acceptance
1.09	Provisions Required by Law Deemed Inserted	1.35	Final Estimate and Payment
1.10	Permits	1.36	Liens
1.11	Not to Sublet or Assign	1.37	Claims
1.12	Delay by Owner	1.38	Application of Moneys Retained
1.13	Time for Completion	1.39	No Waiver
1.14	Liquidated Damages	1.40	Liability of Owner
1.15	Night, Saturday, Sunday and Holiday Work	1.41	Guarantee
1.16	Employ Competent Persons	1.42	Retain Money for Repairs
1.17	Employ Sufficient Labor and Equipment	1.43	Return of Drawings
1.18	Intoxicating Liquors and/or Drugs	1.44	Cleaning Up
1.19	Access to Work	1.45	Legal Address of Contractor
1.20	Examination of Work	1.46	Headings
1.21	Defective Work, Etc.	1.47	Modification or Termination
1.22	Protection Against Water and Storm	1.48	Direct Labor cost
1.23	Right to Materials	1.49	Massachusetts Tax Laws
1.24	Changes	1.50	Termination for Convenience
1.25	Extra Work	1.51	Equal Employment Opportunity, Antidiscrimination and Affirmative Action
1.26	Extension of Time on Account of Extra Work	1.52	Unlawful Conduct and Participation in Boycott

1.01 DEFINITIONS

Wherever the words hereinafter defined or pronouns used in their stead occur in the Contract Documents, they shall have the following meaning indicated which shall be applicable to both the singular and plural thereof:

ADDENDA - Written or graphic instruments prior to the opening of Bids which Clarify, correct or change the Bidding Requirements or Contract Documents.

AGREEMENT - the written contract between Owner and Contractor covering the Work to be performed.

"AS DIRECTED," "AS ORDERED," "AS REQUESTED," "AS REQUIRED", "AS

PERMITTED," or words of like import are used, it shall be understood that the direction, order, request, requirement, or permission of the Engineer is intended.

"APPROVED," "ACCEPTABLE," "SUITABLE," "SATISFACTORY," and words of like import shall mean approved by, acceptable to, suitable to, or satisfactory to the Engineer.

APPLICATION FOR PAYMENT - Form used by Contractor in requesting progress or final payments, format to be acceptable to the Engineer.

bid - The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bidder - Any person, firm or corporation submitting a bid for the work.

CHANGE ORDER - A document recommended by the Engineer, which is signed by the Contractor and Owner authorizing the addition, deletion or revision in the Work, or adjustment in the Contract Price or Contract Time, issued on or after the effective date of the Agreement.

CONTRACTOR - The person, firm or corporation with whom the Owner has entered into the Agreement.

Contract Bonds - Bid, Performance, and Labor and Materials Bonds and other instruments of security furnished by the Contractor and his surety in accordance with the Contract Documents.

CONTRACT DOCUMENTS - The Agreement, Addenda, Bid, Post Bid documentation submitted prior to the Notice Award, The Notice to Proceed, Bonds, General Conditions, Supplementary Conditions, The Specifications, the Drawings, all written Amendments, Change Orders, Field Orders, and Engineers written interpretations and clarifications.

Contract Price - The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

Contract Time - The number of calendar days stated in the Contract Documents for the completion of the Work.

Construction superintendent - That person designated by the Contractor to carry out the provisions of the Contract.

Datum or levels - The figures given in the Contract and Specifications or upon the Drawings after the word elevation or abbreviation of it, shall mean the distance in feet above mean sea level, the base of the State in

which the Work is located and the United States Geodetic Survey (U.S.G.S.).

Drawings - The part of the Contract Drawings which show the characteristics and Scope of the Work to be performed and which have been prepared or approved by the Engineer.

EARTH - Wherever used as the name of an excavated material or material to be excavated, shall mean all kinds of material other than rock as defined in this section.

Elevation - The figures given on the Drawings or in the other Contract Documents after the word "elevation" or abbreviation of it shall mean the distance in feet above the datum adopted by the Engineer.

Engineer - The person, firm or corporation duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly authorized representatives. (For this Contract, BETA Group, Inc.)

FIELD ORDER - A written order issued by the Engineer which orders minor changes in the Work which do not involve a change in the Contract Price or an extension of the Contract time.

GENERAL REQUIREMENTS - Sections of Division 1 of the Specifications.

"HEREIN," "HEREINAFTER," "HEREUNDER," and words of like import shall be deemed to refer to the Contract Documents.

Notice of award - The written notice of the acceptance of the Bid from the Owner to the successful Bidder.
notice to proceed - Written communication issued by the Owner to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.

OWNER - The public body or authority, corporation, association, firm or person with whom the Contractor has entered into the Agreement and for whom the Work is to be provided.

project or contract - The undertaking to be performed in the Contract Documents.

project representative - The authorized representative of the owner who is assigned to the project site or any part thereof.

ROCK - wherever used as the name of an excavated material to be excavated, shall mean only boulders and pieces of concrete and masonry exceeding 1 cu. yd. in volume, or igneous, sedimentary, metamorphic, and conglomerate rock which, in the opinion of the Engineer, requires, for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power-operated tool. No soft or disintegrated rock which can be removed with a hand pick or power-operated excavator or shovel, no loose, shaken, or previously blasted rock or broken stone in rock fillings, or elsewhere, and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation, will be measured or allowed as "rock."

SHOP DRAWINGS - All drawings, diagrams, schedules and other data or information prepared for and submitted by the Contractor, to illustrate portions of the Work.

SPECIFICATIONS - The portions of the Contract documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.
subcontractor - An individual, firm or corporation, approved by the Owner and Engineer having a direct contract with the Contractor or with any other Sub-Contractor for the performance of a part of the Work on the Project.

SUBSTANTIAL COMPLETION - Date certified by the Engineer when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for which it was intended, as expressed in the Contract documents.

SUPPLEMENTARY CONDITIONS - The part of the Contract Documents which amends or supplements the General Conditions.

supplier - Any person or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.

written notice - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed when posted by certified or registered mail to the said party at his last given address or delivered in person to said party or his authorized representative on the Work.

WORK - The entire completed construction or the various separately identifiable parts thereof required to

be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

1.02 THE CONTRACT DOCUMENTS

A. The Contract Documents, as defined above, are sometimes herein referred to as the "Contract".

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. In the event of any conflict or inconsistency between the provisions of the AGREEMENT and the provisions of any of the other Contract Documents, the provisions of the AGREEMENT shall prevail.

B. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the edition of the standard specification, manual, code or laws or regulations identified in the reference. In the event a particular edition is not identified, the reference shall mean the latest amended edition in effect at the time of receipt of the Bid. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the Owner, the Contractor or the Designer, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to the Engineer, or any of the Engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provisions of the AGREEMENT.

1.03 OBLIGATIONS AND LIABILITY OF CONTRACTOR

A. The Contractor shall do all the work and perform and furnish all the labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies and all other things (except as otherwise expressly provided herein) necessary and as herein specified for the proper performance and completion of the Work in the manner and within the time hereinafter specified, in strict accordance with the Drawings, Specifications and other Contract Documents, in conformity with the

directions and to the satisfaction of the Engineer, and at the prices herein agreed upon therefor.

B. All parts of the Work and all fixtures, equipment, apparatus and other items indicated on the Drawings and not mentioned in the Specifications, or vice versa, and all work and material usual and necessary to make the work complete in all its parts, including all incidental work necessary to make it complete and satisfactory and ready for use and operation, whether or not they are indicated on the Drawings or mentioned in the Specifications, shall be furnished and executed the same as if they were called for both by the Drawings and by the Specifications.

C. The Contractor shall coordinate his operations with those of any other contractors who may be employed on other work of the Owner, shall avoid interference therewith, and shall cooperate in the arrangements for storage of materials and equipment.

D. The Contractor shall conduct his work so as to interfere as little as possible with private business and public travel. Wherever and whenever necessary or required, he shall maintain fences, furnish watchmen, maintain lights, and take such other precaution as may be necessary to protect life and property.

E. The Contractor shall indemnify and save harmless the Owner and the Engineer and their officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, on account of bodily injury, sickness, disease or death sustained by any person or persons or injury or damage to or destruction of any property, directly or indirectly arising out of, relating to or in connection with the Work, whether or not due or claimed to be due in whole or in part to the active, passive or concurrent negligence or fault of the Contractor, his officers, agents, servants or employees, any of his subcontractors, or any of their respective officers, agents, servants or employees and/or any other person or persons, and whether or not such claims, demands, suits or proceedings are just, unjust, groundless, false or fraudulent; and the Contractor shall and does hereby assume and agrees to pay for the defense of all such claims, demands, suits and proceedings, provided, however, that the Contractor shall not be required to indemnify the Engineer, his officers, agents, servants or employees, against any such damages occasioned solely by defects in maps, plans, drawings, designs or specifications prepared, acquired or used by the Engineer and/or solely by the negligence or fault of the Engineer; and provided further, that the

Contractor shall not be required to indemnify the Owner, his officers, agents, servants or employees, against any such damages occasioned solely by acts or omissions of the Owner other than supervisory acts or omissions of the Owner in the Work.

F. The Contractor shall have complete responsibility for the Work and the protection thereof, and for preventing injuries to persons and damage to the Work and property and utilities on or about the Work, until final completion and final acceptance thereof. He shall in no way be relieved of his responsibility by and right of the Engineer to give permission or directions relating to any part of the Work, by any such permission or directions given, or by failure of the Engineer to give such permission or directions. The Contractor shall bear all costs, expenses, losses and damages on account of the quantity or character of the Work or the nature of the land (including but not limited to subsurface conditions) in or under or on which the Work is done being different from that indicated or shown in the Contract Documents or from what was estimated or expected, or on account of the weather, elements, or other causes.

G. The Contractor shall conduct his operations so as not to damage existing structures or work installed either by him or by other contractors. In case of any such damage resulting from his operations, he shall repair and make good as new the damaged portions at his own expense with the consent of the damaged party. In the event that consent is not given, the Contractor shall continue liable for the damage caused.

H. The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, their officers, agents, servants and employees as he is for his own acts and omissions and those of his own officers, agents, servants and employees.

I. Should the Contractor sustain any loss, damage or delay through any act or omission of any other contractor or any subcontractor of any such other contractor, the Contractor shall have no claim against the Owner therefor, other than for an extension of time, but shall have recourse solely to such other contractor or subcontractor.

J. If any other contractor or any subcontractor of any such other contractor shall suffer or claim to have suffered loss, damage or delay by reason of the acts or omissions of the contractor or of any of his subcontractors, the Contractor agrees to assume the defense against any such claim and to reimburse such

other contractor or subcontractor for such loss or damage.

K. The Contractor agrees to and does hereby indemnify and save harmless the Owner from and against any and all claims by such other contractors or subcontractors alleging such loss, damage or delay from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, arising out of, relating to or resulting from such claims.

L. The Contractor shall promptly pay all federal, state and local taxes which may be assessed against him in connection with the Work or his operations under the AGREEMENT and/or the other Contract Documents, including, but not limited to, taxes attributable to the purchase of material and equipment, to the performance of services, and the employment of persons in the prosecution of the Work.

M. Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material

1. The Owner shall be responsible for any Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specification or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. The Owner shall not be responsible for any such materials brought to the site by the Contractor, Subcontractors, Suppliers or anyone else for whom the Contractor is responsible.

2. To the fullest extent permitted by Laws and Regulations, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Engineer, Engineer's Consultants and the officers, directors, employees, agents other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from such hazardous condition, provided that: (i) any such claim, cost, loss or damage is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (ii) nothing in this subparagraph shall obligate the Owner to indemnify any person or entity from and against the consequences of that person's or entity's own negligence.

1.04 AUTHORITY OF THE ENGINEER

A. The Engineer shall be the sole judge of the intent and meaning of the Drawings and Specifications and his decisions thereon and his interpretation thereof shall be final, conclusive and binding on all parties.

B. The Engineer shall be the Owner's representative during the life of the Contract and he shall observe the Work in progress on behalf of the Owner. He shall have authority (1) to act on behalf of the Owner to the extent expressly provided in the Contract or otherwise in writing; (2) to determine the amount, quality, acceptability and fitness of all work, materials and equipment required by the Contract; and (3) to decide all questions which arise in relation to the Work, the execution thereof, and the fulfillment of the Contract.

C. The Contractor shall proceed without delay to perform the work as directed, instructed, determined or decided by the Engineer and shall comply promptly with such directions, instructions, determinations or decisions. If the Contractor has any objection thereto he may, within ten (10) days of having received any such direction, instruction, determination or decision, require that any such direction, instruction, determination or decision be put in writing and within ten (10) days after receipt of any such writing he may file a written protest with the Owner stating clearly and in detail his objections, the reasons therefor, and the nature and amount of additional compensation, if any, to which he claims he will be entitled thereby. A copy of such protest shall be filed with the Engineer at the same time it is filed with the Owner. Unless the Contractor requires that any such direction, instruction, determination or decision be put in writing within ten (10) days of having received such direction, instruction, determination or decision and unless the Contractor files such written protest with the Owner and Engineer within such ten (10) day period, he shall be deemed to have waived all grounds for protest of such direction, instruction, determination, or decision and all claims for additional compensation or damages occasioned thereby, and shall further be deemed to have accepted such direction, instruction, determination, or decision as being fair, reasonable, and finally determinative of his obligations and rights under the Contract.

1.05 SUPERVISION OF WORK

A. The Contractor shall be solely responsible for supervision of the Work, shall give the work the constant attention necessary to ensure the expeditious

and orderly progress thereof, and shall cooperate with the Engineer in every possible way.

B. At all times, the Contractor shall have his agent on the Work a competent superintendent capable of reading and thoroughly understanding the Drawings and Specifications, with full authority to execute the directions of the Engineer without delay and to supply promptly such labor, services, materials, equipment, plant, apparatus, appliances, tools, supplies and other items as may be required. Such superintendent shall not be removed from the Work without the prior written consent of the Engineer. If, in the opinion of the Engineer, the superintendent or any successor proves incompetent, the Contractor shall replace him with another person approved by the Engineer; such approval, however, shall in no way relieve or diminish the Contractor's responsibility for supervision of the Work.

C. Whenever the Contractor or his agent or superintendent is not present on any part of the Work where it may be necessary to give directions or instructions with respect to such work, such directions or instructions may be given by the Engineer to and shall be received and obeyed by the designated foreman or any other person in charge of the particular work involved.

1.06 INSURANCE

A. Before starting and until final completion and acceptance of the Work and expiration of the guarantee period provided for in the AGREEMENT the Contractor shall procure and maintain insurance of the types specified in paragraphs (1) to (15), inclusive, below, and to the limits for this insurance specified in Table A at the end of this section. All insurance shall be obtained from companies satisfactory to the Owner and Engineer.

B. Insurance shall be in such forms as will protect the Contractor from all claims and liability for damages for bodily and personal injury, including accidental death, and for property damage, which may arise from operations under the Contract, whether such operations be by himself, his subcontractors, or by anyone directly or indirectly employed or engaged by him.

C. The OWNER and BETA Group shall be named as an "additionally insured".

D. The following types of insurance shall be provided on all policies:

1. Workmen's Compensation and Employer's Liability Insurance.

2. Bodily Injury Insurance for operations and completed operations and Contractor's Protective Bodily Injury Insurance.

3. Property Damage Insurance for operations and completed operations and Contractor's Protective Property Damage Insurance, each including coverage for injury to or destruction of wires or pipes and similar property and appurtenant apparatus and the collapse of or structural injury to any building or structure except those on which work under the Contract is being done. Blasting and explosion coverage shall be obtained if there is a need for blasting under the Contract, and no blasting shall be performed until such insurance has been secured.

4. Bodily Injury Insurance covering the operation of all motor vehicles owned by the Contractor.

5. Personal Injury Insurance to cover claims for personal injury and including claims brought by employees.

6. Property Damage Insurance covering the operation of all motor vehicles owned by the Contractor.

7. Insurance to cover bodily injuries and property damage resulting from the use of motor vehicles not owned by the Contractor, while such vehicles are being operated in connection with the prosecution of the Work.

8. Contractual Liability Insurance covering the liability assumed by the Contractor under the fifth paragraph of that subsection titled "Obligations and Liability of Contractor" of this AGREEMENT.

9. Owner's Protective Liability and Property Damage Insurance to protect the Owner and the Engineer against claims for Property damage and for bodily injuries, including accidental death, caused by the operations of the Contractor or his subcontractors on the Work. The policy shall indicate the Owner and the Engineer as the named insured. A copy of the policy shall be furnished to the Owner and a Certificate of Insurance shall be furnished to the Engineer.

10. Builders' Risk Insurance with an "All Risk" Installation Floater covering loss by fire and extended coverage in the completed value form in the amount of the total insurable value of all structures, materials, and equipment to be built and installed. The insurance shall be obtained from a company satisfactory to the Owner. The policy shall indicate Owner, the Contractor, all subcontractors, and the Engineer as the named insured with loss payable to the Owner as Trustee. The policy shall provide for a 30-day notice to the Owner of

cancellation or restrictive amendment. A copy of the policy shall be furnished to the Owner and a Certificate of Insurance shall be furnished to the Engineer. The insurance shall be obtained before the work is started and shall be maintained until the date of completion of the work as stated in the final estimate, or until the Owner occupies or otherwise take possession of the structure, whichever occurs first.

E. All policies shall be so written that the Owner will be notified in writing of cancellation or restrictive amendment at least 30 days prior to the effective date of such cancellation or amendment.

F. Certificates from the Contractor's insurance carriers stating the coverage provided, the limits of liability, and expiration dates shall be filed in triplicate with the Owner before operations are begun. Such certificates shall be on the form furnished by the Owner.

G. Certificates from the contractor naming the OWNER and BETA Group as additionally insured must be received by the Owner prior to initiating the work.

H. Renewal certificates must be furnished by the Contractor prior to the expiration date of any of the initial insurances.

I. No insurance required or furnished hereunder shall in any way relieve the Contractor of or diminish any of his responsibilities, obligations and liabilities under the Contract.

1.07 PATENTS

A. The Contractor's attention is directed to the following "Patent Indemnity Clause" illustrating the format and/or required wording therefore which shall be used by all manufacturers and/or suppliers, as deemed necessary by the Owner and Engineer, as an Indemnification and Hold Harmless Agreement.

B. This Agreement shall be accepted and approved in form by the Owner and Engineer prior to the approval and/or installation of the product.

PATENT INDEMNIFICATION

"In consideration for their purchase and use of the (Name of product and/or equipment) manufactured by (name of Manufacturer) and for other good and valuable consideration, (Name of Manufacturer) agrees to defend and hold harmless (Name of Contractor), BETA Group,

Inc., and the (Name of Owner), and their employees and agents, from and against any liability, loss, cost, expense or damage including reasonable attorneys' and accountants' fees incurred by these entities in defending or prosecuting any claim for such liability, loss, cost, expense or damage resulting or arising out of a claim that the use of the above mentioned product and/or equipment delivered hereunder directly infringes any United States Patent, provided that (Name of Manufacturer) is given authority, information, and assistance for the defense of such suit, and (Name of Manufacturer) shall pay all damages and costs assessed against the above named entities for the use of such produce and/or equipment provided, however, that this indemnification shall not apply to equipment of (Name of Contractor) design, and provided further that if the use of such product and/or equipment is enjoined in any suit, (Name of Manufacturer) shall at its own expense and its option either procure for (name of Contractor) the right to continue the normal use of such produce and/or equipment, replace said product and/or equipment, modify said equipment or refund the purchase price thereof; and provided further that (Name of Manufacturer) indemnity as to use shall not apply to infringement resulting from the use of the produce and/or equipment delivered hereunder in combination with other items where use of the product and/or equipment per se does not constitute infringement."

1.08 COMPLIANCE WITH LAWS

A. The Contractor shall keep himself fully informed of all existing and future federal, state, and local laws, ordinances, rules, and regulations affecting those engaged or employed on the Work, the materials and equipment used in the Work or the conduct of the Work, and of all orders, decrees and other requirements of bodies of tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Drawings, Specifications or other Contract Documents in relation to any such law, ordinance, rule, regulation, order, decree or other requirement, the Contractor shall forthwith report the same to the Engineer in writing. The Contractor shall at all times observe and comply with, and cause all his agents, with all such existing and future laws, ordinances, rules, regulations, orders, decrees and other requirements, and he shall protect, indemnify and save harmless the Owner, its officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgements, penalties, losses, damages, costs and expenses, including attorneys' fees, arising from or based upon any violation or claimed violation of any such law,

ordinance, rule, regulation, order, decree or other requirement, whether committed by the Contractor or any of his agents, servants, employees or subcontractors.

1.09 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

A. Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though they were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

1.10 PERMITS

A. The Contractor shall, at his own expense, take out and maintain all necessary permits from the county, municipal, or other public authorities; shall give the notices required by law; and shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the Work.

1.11 NOT TO SUBLET OR ASSIGN

A. The Contractor shall constantly give his personal attention to the faithful prosecution of the Work, shall keep the same under his personal control, shall not assign the Contract or sublet the Work or any part thereof without the previous written consent of the Owner, and shall not assign any of the moneys payable under the Contract, or his claim thereto, unless by and with the like written consent of the Owner and the Surety on the Contract Bonds. Any assignment or subletting in violation hereof shall be void and unenforceable.

B. The Contractor shall not sublet or assign work to a subcontractor(s), for a total in excess of fifty (50) percent of the Contract Price, without prior written approval of the Owner and Engineer.

C. The Contractor shall be fully responsible to the Owner for the acts and omissions of his subcontractors, suppliers, and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

D. The Contractor shall cause appropriate provisions, and applicable State or Federal regulations, to be inserted in all subcontractors relative to the work to bind subcontractors to the Contractor by the terms of the

Contract Documents insofar as applicable to the work of subcontractors, and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

E. The Contractor's attention is directed to the fact that nothing contained in this Contract shall create any contractual relation between any subcontractor and the Owner.

1.12 DELAY BY OWNER

A. The Owner may delay the beginning of the Work or any part thereof if the necessary lands or rights-of-way for such work shall not have been obtained. The Contractor shall have no claim for additional compensation or damages on account of such delay, but shall be entitled only to any extension of time as hereinafter provided.

1.13 TIME FOR COMPLETION

A. The rate of progress shall be such that the Work shall be performed and completed in accordance with the Contract before the expiration of the time limit stipulated in Table A at the end of this section, except as otherwise expressly provided herein.

B. It is agreed that the rate of progress herein required has been purposely made low enough to allow for the ordinary and foreseeable delays incident to construction work of this character. No extension of time will be given for ordinary or foreseeable delays, inclement weather, or accidents, and the occurrence of such will not relieve the Contractor from the necessity of maintaining this rate of progress and completing the Work within the stipulated time limit.

C. If delays are caused by acts of God, acts of Government, unavoidable strikes, extra work, or other cause or contingencies clearly beyond the control or responsibility of the Contractor, the Contractor may be entitled to additional time to perform and complete the Work, provided that the Contractor shall, within ten (10) days from the beginning of such delay notify the Owner in writing, with a copy to the Engineer, of the cause and particulars of the delay. Upon receipt of such notification, the Owner shall review and evaluate the cause and extent of the delay. If, under the terms of the AGREEMENT, the delay is properly excusable, the Owner will, in writing, appropriately extend the time for completion of the Work. (This paragraph will be interpreted to include delays in receipt of equipment

provided that the Contractor placed his order and submitted shop drawings for such equipment promptly after execution of the Contract, that he has shown due diligence in following the progress of the order, and that the time required for delivery is in accordance with conditions generally prevailing in the industry.) The Contractor agrees that he shall not have or assert any claim for nor shall he be entitled to any additional compensation or damages on account of such delays.

D. The time in which the Work is to be performed and completed is of the essence of this AGREEMENT.

1.14 LIQUIDATED DAMAGES

A. In case the Contractor fails to complete the Work satisfactorily on or before the date of completion fixed herein or as duly extended as hereinbefore provided, the Contractor agrees that the Owner shall deduct from the payments due the Contractor each month the sum set forth in Table A at the end of this section for each calendar day of delay, which sum is agreed upon not as a penalty, but as fixed and liquidated damages for each day of such delay. If the payments due the Contractor are less than the amount of such liquidated damages, said damages shall be deducted from any other moneys due or to become due the Contractor, and, in case such damages shall exceed the amount of all moneys due or to become due the Contractor, the Contractor or his Surety shall pay the balance to the Owner.

1.15 NIGHT, SATURDAY, SUNDAY AND HOLIDAY WORK

A. No work shall be done at night, on Saturday on Sunday or on a holiday except (1) usual protective work, such as pumping and the tending of lights, (2) work done in case of emergency threatening injury to persons or property, or (3) if all of the conditions set forth in the next paragraph below are met.

B. No work other than that included in (1) and (2) above shall be done at night except when (a) in the sole judgment of the Owner, the work will be of advantage to the Owner and can be performed satisfactorily at night, (b) the work will be done by a crew organized for regular and continuous night work, and (c) in the sole judgment of the Owner and Engineer, adequate noise prevention measures are incorporated into the Work by the Contractor to minimize any noise impact within the work area and (d) the Owner has given written permission for such night work. The Contractor is responsible for obtaining all permits and approvals required.

1.16 EMPLOY COMPETENT PERSONS

A. The Contractor shall employ only competent persons on the Work and shall not employ persons or means which may cause strikes, work stoppages or any disturbances by persons employed by the Contractor, any subcontractor, the Owner, the Engineer or any other contractor. Whenever the Engineer notifies the Contractor in writing that in his opinion any person on the Work is incompetent, unfaithful, disorderly, or otherwise unsatisfactory, or not employed in accordance with the provisions of the Contract, such person shall be discharged from the Work and shall not again be employed on it, except with the written consent of the Engineer.

1.17 EMPLOY SUFFICIENT LABOR AND EQUIPMENT

A. If in the sole judgment of the Engineer the Contractor is not employing sufficient labor, plant, equipment or other means to complete the Work within the time specified, the Engineer may, after giving written notice, require the Contractor to employ such additional labor, plant, equipment and other means as the Engineer deems necessary to enable the Work to progress properly.

1.18 INTOXICATING LIQUORS AND/OR DRUGS

A. The Contractor shall not sell and shall neither permit nor suffer the introduction and/or use of intoxicating liquors and/or drugs upon or about the Work.

1.19 ACCESS TO WORK

A. The Owner, the Engineer, and their officers, agents, servants and employees may at any and all times and for any and all purposes, enter upon the Work and the site thereof and the premises used by the Contractor, and the Contractor shall at all times provide safe and proper facilities therefor.

1.20 EXAMINATION OF WORK

A. The Engineer shall be furnished by the Contractor with every reasonable facility for examining and inspecting the Work and for ascertaining that the Work is being performed in accordance with the requirements and intent of the Contract, even to the extent of requiring

the uncovering or taking down portions of furnished work by the Contractor.

B. Should the work thus uncovered or taken down prove satisfactory, the cost of uncovering or taking down and the replacement thereof shall be considered as extra work unless the original work was done in violation of the Contract in point of time or in the absence of the Engineer or his inspector and without his written authorization, which case said cost shall be borne by the Contractor. Should the work uncovered or taken down prove unsatisfactory, said cost shall likewise be borne by the Contractor.

C. Examination of inspection of the Work shall not relieve the Contractor of any of his obligations to perform and complete the Work as required by the Contract.

1.21 DEFECTIVE WORK, ETC.

A. Until acceptance and during the applicable guarantee period thereafter, the Contractor shall promptly, without charge, repair, correct or replace work, equipment, materials, apparatus or parts thereof which are defective, damaged or unsuitable or which in any way fail to comply with or be in strict accordance with the provisions and requirements of the Contract or applicable guarantee and shall pay to the Owner all resulting costs, expenses, losses or damages suffered by the Owner.

B. If any material, equipment, apparatus or other items brought upon the site for use or incorporation in the Work, or selected for the same, is rejected by the Engineer as unsuitable or not in conformity with the Specifications or any of the other Contract Documents, the Contractor shall forthwith remove such materials, equipment, apparatus and other items from the site of the Work and shall at his own cost and expense make good and replace the same and any material furnished by the Owner which shall be damaged or rendered defective by the handling or improper installation by the Contractor, his agents, servants, employees or subcontractors.

1.22 PROTECTION AGAINST WATER AND STORM

A. The Contractor shall take all precautions necessary to prevent damage to the Work by storms or by water entering the site of the Work directly or through the ground. In case of damage by storm or water, the Contractor shall at his own cost and expense make such repairs or replacements or rebuild such parts of the Work

as the Engineer may require in order that the finished Work may be completed as required by the Contract.

1.23 RIGHT TO MATERIALS

A. Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials, equipment, apparatus and other items furnished after they have been installed or incorporated in or attached or affixed to the Work or the site, but all such materials, equipment, apparatus and other items shall, upon being so installed, incorporated, attached or affixed, become the property of the Owner. Nothing in this subsection shall relieve the Contractor of his duty to protect and maintain all such materials, equipment, apparatus and other items.

1.24 CHANGES

A. The Owner, through the Engineer, may make changes in the Work and in the Drawings and Specifications therefor by making alterations therein, additions thereto or omissions therefrom. All work resulting from such changes shall be performed and furnished under the pursuant to the terms and conditions of the Contract. If such changes result in an increase or decrease in the Work to be done hereunder, or increase or decrease the quantities thereof, adjustment in compensation shall be made therefor at the unit prices stipulated in the Contract for such work, except that if unit prices are not stipulated for such work, compensation for additional or increased work shall be made as provided hereinafter under the subsection titled "Extra Work"; and for eliminated or decreased work the Contractor shall allow the Owner a reasonable credit as determined by the Engineer.

B. Except in an emergency endangering life or property, no change shall be made unless in pursuance of a written order from the Engineer authorizing the change, and no claim for additional compensation shall be valid unless the change is so ordered.

C. The Contractor agrees that he shall neither have nor assert any claim for or be entitled to any additional compensation for damages or for loss of anticipated profits on work that is eliminated.

1.25 EXTRA WORK

A. The Contractor shall perform any extra work (work in connection with the Contract but not provided for herein) when and as ordered in writing by the Engineer, at the unit prices stipulated in the Contract for such work

or, if none are so stipulated, whether (a) at the price agreed upon before such work is commenced and named in the written order for such work, or (b) if the Engineer so elects, for the reasonable cost of such work, as determined by the contractor and approved by the Engineer, plus a percentage of such cost, as set forth below. No extra work shall be paid for unless specifically ordered as such in writing by the Engineer.

B. The Contractor shall submit claim for any extra work within ten (14) calendar days of performing said extra work.

C. The cost of extra work done under (b) above shall include the reasonable cost to the Contractor of materials used and equipment installed, common and skilled labor, and foremen, and the fair rental of all machinery and equipment used on the extra work for the period of such use.

D. At the request of the Engineer, the Contractor shall furnish itemized statements for the cost of the extra work ordered as above and give the Engineer access to all records, accounts, bills and vouchers and correspondence relating thereto.

E. The Contractor may include in the cost of extra work the amounts of additional premiums, if any, (other than premiums on bonds) paid on the required insurance on account of such extra work, of Social Security or other direct assessments upon the Contractor's payroll by Federal or other properly authorized public agencies, and of other approved assessments when such assessments are not normally included in payments made by the Contractor directly to his employees, but in fact are, and are customarily recognized as, part of the cost of doing work.

F. The fair rental for all machinery and equipment shall be based upon the most recent edition of "Compilation of Rental Rates for Construction Equipment," published by the Associated Equipment Distributors, or a similar publication approved by the Engineer. Rental for machinery and equipment shall be based upon an appropriate fraction of the approved monthly rate schedule. If said extra work requires the use of machinery or equipment not already on the site of the Work the cost of transportation, not exceeding a distance of 100 miles, of such machinery or equipment to and from the Work shall be added to the fair monthly rental; provided, however, that this shall not apply to machinery or equipment already required to be furnished under the terms of the Contract.

G. The Contractor shall not include in the cost of extra work any cost or rental of small tools, building, or any portion of the time of the Contractor, his superintendent, or his office and engineering staff.

H. To the cost of extra work done by the Contractor's own forces under (b) above (determined as stated above), the Contractor may add 20 percent to cover his overhead, use of capital, the premium on the Bonds as assessed upon the amount of this extra work, and profit.

I. In the case of extra work done under (b) by a subcontractor the subcontractor shall compute, as above, his cost for the extra work, to which he may add 20 percent as in the case of the Contractor. The Contractor shall be allowed an additional 5 percent of the subcontractor's initial cost for the extra work prior to the 20 percent adjustment, to cover the costs of the Contractor's overhead use of capital, the premium on the Bonds as assessed upon the amount of this work, and profit. Said subcontractor's cost must be reasonable and approved by the Engineer.

J. If extra work is done under (b) above, the Contractor and/or subcontractor shall keep daily records of such extra work. The daily record shall include the names of men employed, the nature of the work performed, and hours worked, materials and equipment incorporated, and machinery or equipment used, if any, in the prosecution of such extra work. This daily record, to constitute verification that the work was done, must be signed both by the Contractor's authorized representative and by the Engineer. A separate daily record shall be submitted for each Extra Work Order.

1.26 EXTENSION OF TIME ON ACCOUNT OF EXTRA WORK

A. When extra work is ordered near the completion of the Contract or at any time during the progress of the Work which unavoidably increases the time for the completion of the Work, and extension of time shall be granted as hereinbefore provided.

1.27 CHANGES NOT TO AFFECT BONDS

A. It is distinctly agreed and understood that any changes made in the Work or the Drawings or Specifications therefor (whether such changes increase or decrease the amount thereof or the time required for its performance) or any changes in the manner of time of payments made by the Owner to the Contractor, or any other modifications of the Contract, shall in no way annul, release, diminish or affect the liability of the

Surety on the CONTRACT BONDS given by the Contractor, it being the intent hereof that notwithstanding such changes the liability of the Surety on said bonds continue and remain in full force and effect.

1.28 CLAIMS FOR DAMAGES

A. If the Contractor makes claim for any damages alleged to have been sustained by breach of contract or otherwise, he shall, within ten (10) days after occurrence of the alleged breach or within ten (10) days after such damages are alleged to have been sustained, whichever date is the earlier, file with the Engineer a written, itemized statement of the details of the alleged breach and the details and amount of the alleged damages. The Contractor agrees that unless such statement is made and filed as so required, his claim for damages shall be deemed waived, invalid and unenforceable, and that he shall not be entitled to any compensation for any such alleged damages. Within ten (10) days after the timely filing of such statement, the Engineer shall file with the Owner a copy of the statement, together with his recommendations for action by the Owner.

B. The Contractor shall not be entitled to claim any additional compensation for damages by reason of any direction instruction, determination or decision of the Engineer, nor shall any such claims be considered, unless the Contractor shall have complied in all respects with the Article titled "Authority of the Engineer", including, but not limited to the filing of a written protest in the manner and within the time therein provided.

1.29 ABANDONMENT OF WORK OR OTHER DEFAULT

A. If the Work shall be abandoned, or any part thereof shall be sublet without previous written consent of the Owner, or the Contract or any moneys payable hereunder shall be assigned otherwise than as herein specified, or if at any time the Engineer shall be of the opinion, and shall so certify in writing, that the conditions herein specified as to rate of progress are not being complied with, or that the Work or any part thereof is being unnecessarily or unreasonably delayed, or that the Contractor has violated or is in default under any of the provisions of the Contract, or if the Contractor becomes bankrupt or insolvent or goes or is put into liquidation or dissolution, either voluntarily or involuntarily, or petitions for an arrangement or reorganization under the Bankruptcy Act, or makes a general assignment for the benefit of creditors or otherwise acknowledges insolvency, the happening of

any of which shall be and constitute a default under the Contract, the Owner may notify the Contractor in writing, with a copy of such notice mailed to the Surety, to discontinue all Work or any part thereof; thereupon the Contractor shall discontinue such Work or such part thereof as the Owner may designate; and the Owner may, upon giving such notice, by contract or otherwise as it may determine, complete the Work or such part thereof and charge the entire cost and expense of so completing the Work or such part thereof to the Contractor. In addition to the said entire cost and expense of completing the Work, the Owner shall be entitled to reimbursement from the Contractor and the Contractor agrees to pay to the Owner any losses, damages, costs and expenses, including attorney's fees, sustained or incurred by the Owner by reason of any of the foregoing causes. For the purposes of such completion the Owner may for itself or for any Contractors employed by the Owner take possession of and use or cause to be used any and all materials, equipment, plant, machinery, appliances, tools, supplies and such other items of every description that may be found or located at the site of the Work.

B. All costs, expenses, losses, damages, attorney's fees and any and all other charges incurred by the Owner under this subsection shall be charged against the Contractor and deducted and/or paid by the Owner out of any moneys due of payable or to become due or payable under the Contract to the Contractor; in computing the amounts chargeable to the Contractor the Owner shall not be held to a basis of the lowest prices for which the completion of the Work or any part thereof might have been accomplished, but all sums actually paid or obligated therefor to effect its prompt completion shall be charged to and against the account of the Contractor. In case the costs, expenses, losses, damages, attorney's fees and other charges together with all payments theretofore made to or for the account of the Contractor are less than the sum which would have been payable under the Contract if the Work had been properly performed and completed by the Contractor, the Contractor shall be entitled to receive the difference, and, in case such costs, expenses, losses, damages, attorneys' fees and other charges, together with all payments theretofore made to or for the account of the Contractor, shall exceed the said sum, the Contractor shall pay the amount of the excess to the Owner.

1.30 PRICES FOR WORK

A. The Owner shall pay and the Contractor shall receive the prices stipulated in the BID made a part hereof as full compensation for everything performed and furnished and for all risks and obligations

undertaken by the Contractor under and as required by the Contract.

1.31 MONEYS MAY BE RETAINED

A. The Owner may at any time retain from any moneys which would otherwise be payable hereunder so much thereof as the Owner may deem necessary to complete the Work hereunder and to reimburse it for all costs, expenses, losses, damage and damages chargeable to the Contractor hereunder, in accordance with the States General Laws.

1.32 FORMAL ACCEPTANCE

A. This Agreement constitutes an entire contract for one whole and complete Work or result. Fixing of the date of completion and acceptance of the Work or a specified part thereof shall only be effective when accomplished by a writing specifically so stating and signed by the Owner.

1.33 PROGRESS ESTIMATES

A. Once a month, except as hereinafter provided, the Engineer shall make an estimate in writing of the total amount and value of the work done to the first of the month by the Contractor. The Owner shall retain a percentage of such estimated value, as set forth in Table A at the end of this section, as part security for fulfillment of the Contract by the Contractor and shall deduct from the balance all previous payments made to the Contractor, all sums chargeable against the Contractor and all sums to be retained under the provisions of the Contract.

B. Estimates of lump-sum items shall be based on a schedule dividing each such item into its appropriate component parts together with a quantity and a unit price for each part so that the sum of the products of prices and quantities will equal the Contract price for the item. This schedule must be submitted by the Contractor for and must have the approval of the Engineer before the first estimate becomes due.

C. If the Engineer determines that the progress of the Work will be benefited by the delivery to the site of certain materials and equipment, when available, in advance of actual requirement therefor and if such materials and equipment are delivered and properly stored, protected and insured as determined by the Engineer, the cost to the Contractor or subcontractor as established by invoices or other suitable vouchers satisfactory to the Engineer, less the retained

percentages as above provided, may be included in the progress estimates; provided always that there be duly executed and delivered by the Contractor to the Engineer at the same time a Bill of Sale in form satisfactory to the Owner, transferring and assigning to the Owner full ownership and title to such materials or equipment.

D. The Owner shall pay monthly to the Contractor in accordance with General Laws Chapter 30, Section 39, as amended:

1. Within fifteen (15) days (twenty-four (24) days in the case of the Commonwealth) after receipt from the Contractor, at the place designated by the Owner if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the Owner will make periodic payment to the Contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the Contractor has title or to which a subcontractor has title and has authorized the Contractor to transfer title to the Owner, less (1) a retention based on its estimate of the fair value of its claims against the Contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section 39F and less (3) a retention not exceeding five percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within 65 days after (a) the Contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of original contract price, or (b) the Contractor substantially completes the work and the Owner takes possession for occupancy, whichever occurs first, the Owner shall pay the Contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section 39 F, or based on the record of payments by the Contractor to the subcontractors under this contract if such record of payment indicates that the Contractor has not paid subcontractors as provided in section 39 F. If the Owner fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate than charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until payment delivered or mailed to the

Contractor; provided, that no interest shall be due, in any event, on the amount due on periodic estimate for final payment until 15 days (24 days in the case of the Commonwealth) after receipt of such a periodic estimate from the Contractor, at the place designated by the Owner if such a place is so designated. The Contractor agrees to pay to each subcontractor a portion of any such interest in accordance with the amount due each subcontractor.

2. Forthwith after the Contractor receives payment on account of a periodic estimate, the Contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the Contractor.

3. Not later than the 65th day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the Owner shall pay that amount to the Contractor. The Contractor shall forthwith pay to the subcontractor the full amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the Contractor.

4. Each payment made by the Owner to the Contractor pursuant to subparagraphs (2) and (3) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the Contractor for the account of that subcontractor; and the Owner shall take reasonable steps to compel the Contractor to make each such payment to each such subcontractor. If the Owner has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the Contractor or which is to be included in a payment to the Contractor for payment to the subcontractor as provided in subparagraphs (2) and (3), the Owner shall act upon the demand as provided in this section.

5. If, within 70 days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the Owner. The demand shall be by a sworn statement delivered to

or sent by certified mail to the Owner, and a copy shall be delivered to or sent by certified mail to the Contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the 70th day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the Owner and delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the Owner and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor and of the amount due for each claim made by the Contractor against the subcontractor.

6. Within 15 days after receipt of the demand by the Owner, but in no event prior to the 17th day after substantial completion of the subcontract work, the Owner shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount (i) retained by the Owner as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the Contractor in the sworn reply; provided, that the Owner shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (5). The Owner shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

7. The Owner shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (6) in an interest-bearing joint account in the names of the Contractor and the subcontractor in a bank in Massachusetts selected by the Owner or agreed upon by the Contractor and the subcontractor and shall notify the Contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the Contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

8. All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (7) shall be made out of amounts payable to the Contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the Contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the Owner to the Contractor to the extent of such payment.

9. The Owner shall deduct from payments to a Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (7), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the Contractor.

10. If the subcontractor does not receive payment as provided in subparagraph (2) or if the Contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (2), the subcontractor may demand direct payment by following the procedure in subparagraph (5) and the Contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the Contractor. Thereafter the Owner shall proceed as provided in subparagraph (6), (7), (8), and (9).

11. "Subcontractor" as used in Section 1.34 shall mean a person who files a sub-bid and receives a subcontract as a result of that filed subbid or who is approved by the Owner in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the Contractor.

1.34 PARTIAL ACCEPTANCE

A. The Owner may, at any time in a written order to the Contractor (1) declare that he intends to use a specified part of the Work which in his opinion is sufficiently complete, in accordance with the Contract Documents, to permit its use; (2) enclose a tentative list of items remaining to be completed or corrected, and (3) fix the date of acceptance of that specified part of the Work.

B. Within 45 days after acceptance under this subsection, the Engineer shall make an estimate in writing of the amount and value of the part of the Work so accepted. The Owner shall pay said amount to the Contractor after deducting therefrom all previous payments, all charges against the Contractor as provided for hereunder, and all amounts to be retained under the provisions of the Contract, said payment to be made at the time of the next monthly progress estimate.

C. Acceptance by the Owner under this subsection shall not relieve the Contractor of any obligations under the Contract Documents except to the extent agreed upon in writing between the Owner and the Contractor.

D. The Owner shall have the right to exclude the Contractor from any part of the Work which has been accepted, but the Owner will allow the Contractor reasonable access thereto to complete or correct items on the tentative list.

1.35 FINAL ESTIMATE AND PAYMENT

A. As soon as practicable (but not more than sixty-five (65) days after final completion of the Work), the Engineer shall make a final estimate in writing of the quantity of Work done under the Contract and the amount earned by the Contractor.

B. The Owner shall pay to the Contractor the entire amount found by the Engineer to be earned and due hereunder after deducting therefrom all previous payments, all charges against the Contractor as provided for hereunder, and all amounts to be retained under the provisions of the Contract. Except as in this subsection otherwise provided, such payment shall be made not later than fifteen (15) days after but in no event before, the expiration of the time within which claims for labor performed or materials or equipment furnished must be filed under the applicable Lien Law, or, if such time is not specified by law, the expiration of thirty (30) days after the completion of the Engineer's final estimate.

C. All quantities shown on progress estimates and all prior payments shall be subject to correction in the final estimate and payment as determined by the Engineer.

D. The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor under or by virtue of this Agreement; and upon satisfactory completion of the work performed under this Agreement, as a condition before final payment under this Agreement or as a termination settlement under this

Agreement the Contractor shall execute and deliver to the Owner a release of all claims against the Owner arising under or by virtue of, this Agreement, except claims which are specifically exempted by the Contractor to be set forth herein. Unless otherwise provided in this Agreement, by State law or otherwise expressly agreed to be the parties to this Agreement, any payment, including final payment under, this Agreement or settlement upon termination of this Agreement shall not constitute a waiver of the Owner's claims against the Contractor or his sureties under this Agreement or applicable Performance and Labor and Materials Bonds.

1.36 LIENS

A. If at any time any notices of lien are filed and labor performed or materials or equipment manufactured, furnished, or delivered to or for the Work, the Contractor shall, at its own cost and expense, promptly discharge, remove or otherwise dispose of the same, and until such discharge, removal or disposition, the Owner shall have the right to retain from any moneys payable hereunder an amount which, in its sole judgement, it deems necessary to satisfy such liens and pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce the same, or incurred in connection therewith or by reason thereof.

1.37 CLAIMS

A. If at any time there be any evidence of any claims for which the Contractor is or may be liable or responsible hereunder, the Contractor shall promptly settle or otherwise dispose of the same, and until such claims are settled or disposed of, the Owner may retain from any moneys which would otherwise be payable hereunder so much thereof as, in its sole judgement, it may deem necessary to settle or otherwise dispose of such claims and to pay the costs and expenses, including attorney's fees, of defending any actions brought to enforce such claims, or incurred in connection therewith or by reason thereof.

1.38 APPLICATION OF MONEYS RETAINED

A. The Owner may apply any moneys retained hereunder to reimburse itself for any and all costs, expenses, losses, damage and damages, liabilities, suits, judgements and awards incurred, suffered or sustained by the Owner and chargeable to the Contractor hereunder or as determined hereunder.

1.39 NO WAIVER

A. Neither the inspection by the Owner or the Engineer, nor any order, measurement, approval, determination, decision or certificate by the Engineer, nor any order by the Owner for the payment of money, nor any payment for or use, occupancy, possession or acceptance of the whole or any part of the Work by the Owner, nor any extension of time, nor any other act or omission of the Owner or of the Engineer shall constitute or be deemed to be an acceptance of any defective or improper work, materials, or equipment nor operate as a waiver of any requirement or provision of the Contract, nor of any remedy, power or right of or herein reserved to the Owner, nor of any right to damages for breach of contract. Any and all rights and/or remedies provided for in the Contract are intended and shall be construed to be cumulative; and, in addition to each and every other right and remedy provided for herein or by law, the Owner shall be entitled as of right to a writ of injunction against any breach or threatened breach of the Contract by the Contractor, by his subcontractors or by any other person or persons.

1.40 LIABILITY OF OWNER

A. No person, firm or corporation, other than the Contractor who signed this Contract as such, shall have any interest herein or right hereunder. No claim shall be made or be valid either against the Owner or any agent of the Owner and neither the Owner nor any agent of the Owner shall be liable for or be held to pay any money, except as herein provided. The acceptance by the Contractor of the payment as fixed in the final estimate shall operate as and shall be a full and complete release of the Owner and of every agent of the Owner of and from any and all claims, demands, damages and liabilities of, by or to the Contractor for anything done or furnished for or arising out of or relating to or by reason of the Work or for or on account of any act or neglect of the Owner or of an agent of the Owner or of any other person, arising out of, relating to or by reason of the Work, except the claim against the Owner for the unpaid balance, if any there be, of the amounts retained as herein provided.

1.41 GUARANTEE

A. The Contractor guarantees that the Work and services to be performed under the Contract, and all workmanship, materials and equipment performed, furnished, used or installed in the construction of the same, shall be free from defects and flaws, and shall be

performed and furnished in strict accordance with the Drawings, Specifications, and other Contract Documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This guarantee shall be for a period of one year from and after the date of completion and acceptance of the Work as stated in the final estimate. If part of the Work is accepted in accordance with that subsection of this AGREEMENT titled "Partial Acceptance", the guarantee for that part of the Work shall be for a period of one year from the date fixed for such acceptance.

B. If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the Owner may notify the Contractor in writing to make the required repairs, correction, or replacements. If the Contractor neglects to commence making such repairs, correction, or replacements to the satisfaction of the Owner within three (3) days from the date of receipt of such notice, or having commenced fails to prosecute such Work with diligence, the Owner may employ other persons to make the same, and all direct and indirect costs of making said repairs, correction or replacements, including compensation for additional professional services, shall be paid by the Contractor.

1.42 RETAIN MONEY FOR REPAIRS

A. The Owner may retain out of the moneys otherwise payable to the Contractor hereunder a percentage of the amount thereof as set forth in Table A at the end of this section, and may expend the same, in the manner hereinafter provided, in making such repairs, corrections and replacements in the Work as the Owner, in its sole judgement, may deem necessary.

B. If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the Owner may notify the Contractor in writing to make the required repairs, correction or replacements. If the Contractor neglects to commence making such repairs, correction, or replacements to the satisfaction of the Owner within three (3) days from the date of receipt of such notice, or having commenced fails to prosecute such work with diligence, the Owner may employ other persons to make the same. The Owner shall pay the cost and expense of the same out of the amounts retained for that purpose. Upon the expiration of the said period of guarantee, provided that the Work at that time is in good order, the Contractor will be entitled to receive the whole or such part of the sum last aforesaid, if any, as may remain after the cost

and expense of making said repairs, correction or replacements, in the manner aforesaid, have been paid therefrom.

1.43 RETURN OF DRAWINGS

A. All Drawings furnished by the Owner or the Engineer to the Contractor may be used only in connection with the prosecution of the Work and shall be returned by the Contractor upon completion of the Work.

1.44 CLEANING UP

A. The Contractor at all times shall keep the site of the Work free from rubbish and debris caused by his operations under the Contract. When the Work has been completed, the Contractor shall remove from the site of the Work all of his plant, machinery, tools, construction equipment, temporary work, and surplus materials so as to leave the Work and the site clean and ready for use.

1.45 LEGAL ADDRESS OF CONTRACTOR

A. The Contractor's business address and his office at or near the site of the Work are both hereby designated as places to which communications shall be delivered. The depositing of any letter, notice, or other communication in a postpaid wrapper directed to the Contractor's business address in a post office box regularly maintained by the Post Office Department or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon the Contractor, and the date of such service shall be the date of receipt. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor delivered to the Engineer. Service of any notice, letter, or other communication upon the Contractor personally shall likewise be deemed sufficient service.

1.46 HEADINGS

A. The headings or titles of any section, subsection, paragraph, provision, or part of the Contract Documents shall not be deemed to limit or restrict the content, meaning or effect of such section, subsection, paragraph, provision or part.

1.47 MODIFICATION OR TERMINATION

A. Except as otherwise expressly provided herein, the Contract may not be modified or terminated except in writing signed by the parties hereto.

1.48 DIRECT LABOR COST

A. Direct labor cost percentage for change orders in accordance with MGL C30 39G as amended shall be ____ percent. (Direct labor cost percent shall be established following award and prior to execution of the Contract).

1.49 MASSACHUSETTS TAX LAWS

A. The Contractor shall provide a statement that indicates compliance with all the requirements of Massachusetts General Law Chapter 233.

1.50 TERMINATION FOR CONVENIENCE

A. This Agreement may be terminated by the Owner upon not less than seven days' written notice for the Owner's convenience. In the case of termination for convenience, the Owner shall be responsible for amounts due the Contractor for work performed through the date of termination, provided that the Contractor shall submit a request for payment in accordance with

the provisions hereof. The Contractor shall have no other claim for payments due with respect to such termination including any claim for lost profits with respect to the balance of the project.

1.51 EQUAL EMPLOYMENT OPPORTUNITY, ANTIDISCRIMINATION AND AFFIRMATIVE ACTION

A. The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age, or national origin; and that it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

1.52 UNLAWFUL CONDUCT AND PARTICIPATION IN BOYCOTT

A. The Contractor shall not participate in or cooperate with an international boycott, as defined in Section 999 (b) (3) and (4) of the Internal Revenue Code of 1954, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

IN WITNESS WHEREOF, the parties to this AGREEMENT have hereunto set their hands and seals, and have executed, or caused to be executed by their duly authorized officials, the AGREEMENT in Four (4) copies, each of which shall be deemed an original, as of the day and year first above-written.

IN WITNESS WHEREOF the parties have hereto and to two other identical instruments set forth their hands and executed this as an instrument under seal this the day and year first above written.

The Town of Clinton, Massachusetts
(Owner – party of the first part)

BY:

Town Manager _____ Date _____

Print Name

(Contractor - party of the second part)

BY: _____

(SEAL)

(Title)

ATTEST:

(Address)

Appropriation/Availability of Funds:

Town Accountant _____ Date _____

Chief Procurement Officer:

(Name) _____ Date _____

WITNESSES

Town of Clinton, Massachusetts
(Owner - party of the first part)

BY: _____

(SEAL)

ATTEST:

(Contractor - party of the second part)

BY: _____

(SEAL)

(Title)

ATTEST:

(Address)

Approved As To Form:

Legal Counsel for Town of Clinton, Massachusetts

CERTIFICATE OF ACKNOWLEDGMENT OF CONTRACTOR IF A CORPORATION
For AGREEMENT

State of _____)
County _____) ss

on this _____ day of _____, 2013, before me personally

came _____ to me known, who being me duly

sworn, did depose and say as follows:

That he resides at _____
and is the _____
of _____

the corporation described in and which executed the foregoing instrument; that he knows the corporate seal of said corporation; that the seal affixed to the foregoing instrument is such corporate seal and it was so affixed by order of the Board of Directors of said corporation; and that by the like order he signed thereto his name and official designation.

Notary Public (Seal)

My commission expires _____

CERTIFICATE OF OWNER'S LEGAL COUNSEL

I, the undersigned, _____ the duly authorized and acting legal representative of the _____, acting herein through its _____, do hereby certify as follows:

I have examined the foregoing contract and surety bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

By: _____
(Signature)

Date: _____

(Name)

(Title)

(Address)

(City, State, Postal code)

TABLE A

Agreement subsection reference	Item	Minimum limits
1.06	Workman's Compensation and Employer's Liability Insurance	As required by the law of the State of Massachusetts
1.06	Public Liability including Contractor's Protective, Completed Operations and Contractual Liability	<p>Bodily Injury</p> <hr/> <p>\$1,000,000 each occurrence \$2,000,000 aggregate</p> <p>Property Damage Including C.U.* Coverage</p> <hr/> <p>\$1,000,000 each occurrence \$1,000,000 aggregate</p> <hr/> <p>Blasting and explosion coverage shall be obtained if there is a need for blasting under the contract.</p>
1.06	Personal Injury Insurance	\$2,000,000 aggregate
1.06	Automobile Liability including coverage for owned, hired or borrowed vehicles	<p>Bodily Injury</p> <hr/> <p>\$1,000,000 each person \$2,000,000 each occurrence</p> <p>Property Damage</p> <hr/> <p>\$1,000,000 each occurrence</p>

1.06	Owner's Protective Liability & Property Damage	Bodily Injury <hr/> \$1,000,000 each occurrence \$2,000,000 aggregate Property Damage <hr/> \$1,000,000 each occurrence \$1,000,000 aggregate
1.06	Builder's Risk Insurance	Total insurable value of all structures, materials, and equipment to be built and installed.
1.13	a) Time of Completion - Total Contract	Within 90 consecutive calendar days after the date specified in the Notice to Proceed. Also, the Contractor's work shall be completed using a maximum of 60 on-site working days.
1.14	Liquidated Damages for each consecutive calendar day of delay in completion time	\$1,200
1.33	Percentage of Progress Estimates to be Retained The retainage to be paid the Contractor within Ninety (90) days of the date the work is accepted By the awarding authority unless a dispute exists With respect to the work.	5%
1.33	Amount of Minimum Progress Estimates	\$10,000

INSURANCE CERTIFICATE

SHEET 1 OF 2

Issued to

The Town of Clinton, Massachusetts

This is to certify that this Company, _____, (Name of Insurance Company) has enforced the following policies covering all work and operations of _____ (Name of Contractor), as the designate Contractor under a Contract with the **Town of Clinton, Massachusetts** as the designated Owner, dated _____ for **“Town of Clinton, Massachusetts Streetscape Improvements High Street and Church Street”**

POLICY NUMBER

EFFECTIVE AND

KINDS OF INSURANCE

LIMITS

EXPIRATION DATE

Workmen's Compensation
and Employers Liability and
Harbor Workers Coverage *

Number: _____
Effective: _____
Expires: _____

Public Liability including
Contractor's Protective
Personal Injury, Completed
Operations, and Contractual
Liability**

Bodily
Injury

\$_____ each occurrence Number: _____

Effective: _____

\$_____ aggregate Expires: _____

Property
Damage
including
C.U.

\$_____ each occurrence

***Note:

Explosion Collapse
and underground coverage
is provided

Coverage***\$_____ aggregate

Personal
Injury

\$_____ aggregate

* Longshoremen's and Harbor Workers' Coverage may be deleted if not required by contract.

** Contractual Liability covers the liability assumed by the Contractor under the subsection entitled "Obligations and Liability of Contractor" of the AGREEMENT, as required by subsection entitled "Insurance" of the agreement.

*** Blasting coverage is not required.

INSURANCE CERTIFICATE

SHEET 2 OF 2

Issued to

The Town of Clinton, Massachusetts

Contract Reference: Town of Clinton, Massachusetts
Streetscape Improvements High Street and Church Street

POLICY NUMBER**EFFECTIVE AND****KINDS OF INSURANCE****LIMITS****EXPIRATION DATE**

Automobile Liability including Coverage for hired or borrowed vehicles	Bodily	\$ _____ each person	Number: _____
	Injury		Effective: _____
		\$ _____ each occurrence	Expires: _____
	Property Damage	\$ _____ each occurrence	

Owner's Protective Liability and Property Damage	Bodily	\$ _____ each occurrence	Number: _____
	Injury		Effective: _____
		\$ _____ aggregate	
	Property Damage	\$ _____ each occurrence	
		\$ _____ aggregate	

Note: A copy of the Owner's Protective Policy for the Owner is to be furnished with the completed certificates.

It is agreed that thirty (30) days notice of cancellation or restrictive amendment of said policies shall be mailed to Owner.

INSURANCE COMPANY

INSURANCE AGENCY

BY: _____
AUTHORIZED AGENT OR OFFICER

DATE: _____

END OF SECTION

SECTION 0600**CONTRACT BONDS****PERFORMANCE BOND**

(NOTE: This Bond is issued simultaneously with the attached Labor and Materials Bond in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS:

That we, _____
(an individual, a partnership, a corporation)

duly organized under the Laws of the State (or Commonwealth) of _____,

and having a usual place of business at _____,

_____,

as Principal, and _____, a corporation duly organized

under the Laws of the State (or Commonwealth) of _____,

and duly authorized to do business in the State (or Commonwealth) of Massachusetts,

and having a usual place of business at _____

as Surety, are holden and stand firmly bound and obligated unto Town of Clinton, Massachusetts as obligee, in the sum of

_____ lawful money of the United States of America, to and for the true payment whereof we bind ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, be means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as the "Contract") dated _____, has entered into a contract with the said obligee for the "Streetscape Improvements High Street and Church Street", in the Town of Clinton, Massachusetts, a copy of which agreement is attached hereto and by references made a part hereof.

NOW THEREFORE, THE CONDITION of this obligation is such that if the Principal shall well and truly keep and fully and faithfully perform all of the terms and conditions of said AGREEMENT and of the "Contract Documents" referred to in said AGREEMENT (which collectively are hereinafter and in said AGREEMENT sometimes referred to as the "Contract") and all modifications thereof on the Principal's part to be performed, this obligation shall be void; otherwise it shall remain in full force and effect.

Whenever the said Principal shall be, and declared by the Owner to be, in default under the said Contract, the Owner having performed the Owner's obligations thereunder Surety, for value received, shall promptly remedy the default, or, at the option of the Owner, shall promptly.

- (a) Complete the said AGREEMENT and/or Contract in accordance with its terms and conditions, or
- (b) Obtain a bid or bids for submission to and the approval of the Owner for completing the said AGREEMENT and/or Contract and any modifications thereof in accordance with the terms and conditions thereof, and upon determination by the Owner and the Surety of the lowest responsible and acceptable bidder, arrange for a contract between such bidder and the Owner, and make available to the Owner as the work progresses (even though there should be default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less a sum that shall be equal to the difference between the Contract price as fixed and provided in said AGREEMENT and/or Contract or any modifications thereof to be paid thereunder to the Principal and the amount previously paid by the Owner to and/or for the account of and/or chargeable against the Principal, but not exceeding (including other costs and damages for which the Surety may be liable hereunder) the amount set forth in the first paragraph hereof.

The Surety, for value received, agrees further that no changes in, omissions from, or alterations, modifications or additions to the terms and provisions of said AGREEMENT and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner or time of making payments thereunder, shall in any way effect the Surety's obligations on this bond, and the Surety hereby waives notice of any such changes, omissions, alterations, modifications, additions or extensions.

No right of action shall accrue on this Bond to or for the use of any persons other than the Owner named herein or the heirs, executors, administrators, successors and assigns of the Owner.

IN WITNESS WHEREOF, we have hereunto set our hands and seals to _____
_____ counterparts of this bond, this _____ day of _____,
in the year Two Thousand and _____.

Principal (SEAL)

Principal (SEAL)

Principal (SEAL)

Surety (SEAL)

Surety (SEAL)

NOTE:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized officer or officers.

If this Bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his power of attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the Bond corresponding to the number of counterparts of the AGREEMENT.

Date of Bond must not be prior to the date of Contract.

Important Requirement

Surety Companies executing BONDS must appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts and be authorized to transact business in the state where the PROJECT is located.

The attention of the Surety Companies and Principal executing this Performance Bond is Directed to the fact that said Bond shall remain in full effect throughout the life of any guaranty or warranty periods stipulated in the Contract Documents and/or Agreement.

LABOR AND MATERIALS BOND

(NOTE: This Bond is issued simultaneously with the attached Performance Bonds in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS:

That we, _____
(an individual, a partnership, a corporation)

duly organized under the Laws of the State (or Commonwealth) of _____,

having a usual place of business at _____,

_____,

as Principal, and _____ a corporation duly organized

under the Laws of the State (or Commonwealth) of _____,

and duly authorized to do business in the State (or Commonwealth) of _____,

and having a usual place of business at _____,

as Surety, are holden and stand firmly bound and obligated unto the Town of Clinton, Massachusetts, as obligee, in the sum of

_____ lawful money of the United States of America, to and for the true payment whereof we bind ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, be means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as the "Contract") dated _____, has entered into a contract with the said obligee for "**Streetscape Improvements**", in the Town of Clinton, Massachusetts a copy of which agreement is attached hereto and by references made a part hereof.

NOW, THEREFORE, THE CONDITION of this obligation is such, that if the Principal shall promptly make payments to all claimants as hereinafter defined, for all labor performed or furnished and for all materials and equipment furnished for or used in or in connection with the Work called for by said AGREEMENT and/or Contract and any modifications thereof, including lumber used but not incorporated in said Work, and for the rental or hire of vehicles, tools and other appliances and equipment furnished for or used in connection with said Work, this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

- (a) A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, materials and/or equipment used or reasonably required for use in the performance of the said Work, labor and materials being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental or equipment directly applicable to the said AGREEMENT and/or Contract and any modifications thereof.
- (b) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials or equipment were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.
- (c) No suit or action shall be commenced hereunder by any claimant.

Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials or equipment for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials or equipment were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner or Surety at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the said Work is located, save that such service need not be made by a public officer;

After the expiration of one (1) year following the date on which the Principal ceased work on said AGREEMENT and/or Contract and any modifications thereof, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the State in which the said Work, or any part thereof, is situated, or in the United States District Court for the district in which the said Work, or any part thereof, is situated, and not elsewhere.

- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said AGREEMENT and/Contract

or said Work, whether or not claim for the amount of such lien be presented under and against this bond.

The surety, for value received, agrees further that no changes in, omissions from, or alterations, modifications or additions to the terms and provisions of said AGREEMENT and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner or time of making payments thereunder, shall in any way affect the Surety's obligations on this Bond, and the Surety hereby waives notice of any such changes, omissions, alterations, modifications, additions or extensions.

IN WITNESS WHEREOF, we have hereunto set our hands and seals to _____
counterparts of this Bond, this _____ day of _____, in
the year Two Thousand and _____.

Principal (SEAL)

Principal (SEAL)

Principal (SEAL)

Surety (SEAL)

Surety (SEAL)

NOTE:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized officer or officers.

If this Bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his power of attorney showing his authority to sign such Bonds.

There should be executed an approximate number of counterparts of the Bond corresponding to the number of counterparts of the AGREEMENT.

Date of Bond must not be prior to the date of Contract.

Important Requirement

Surety Companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

The attention of the Surety Companies and Principal executing this Labor and Materials Bond is directed to the fact that said Bond shall remain in full effect throughout the life of any guaranty or warranty periods stipulated in the Contract Documents and/or Agreement.

**CERTIFICATE OF ACKNOWLEDGMENT OF CONTRACTOR IF A CORPORATION
For CONTRACT BONDS**

State of _____)

) ss:

County of _____)

On this _____ day of _____, 20_____, before
me personally came _____ to me known, who being by me duly
sworn, did depose and say as follows:

That he resides at _____
and is the _____
of _____

the corporation described in and which executed the foregoing instrument; that he knows the
corporate seal of said corporation; that the seal affixed to the foregoing instrument is such
corporate seal and it was so affixed by order of the Board of Directors of said corporation; and
that by the like order he signed thereto his name and official designation.

Notary Public (Seal)

My commission expires _____

STATE TAX CERTIFICATE

Pursuant to M.G.L., Ch. 62C, sec. 49A, I certify under the penalties of perjury that I, to the best of my knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

Social Security Number *
Or Federal Identification Number *

Signature of Individual or
Corporate Name

by: _____
Corporate Office (if applicable)

* Submission of a Social Security Number or a Federal Identification Number is voluntary.

END OF SECTION

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SECTION 00700**GENERAL CONDITIONS**

- 1.01 General Provisions obligation, right and remedy to which they apply.
- 1.02 Definitions
- 1.03 Materials and Equipment
- A. General
 - B. Handling
 - C. Storage of Excavated Material
 - D. Inspection
 - E. Inspection Away from Site
 - F. Samples
 - G. Shop testing
- 1.04 Contractor's Shop and Working Drawings
- 1.05 Occupying Private Land
- 1.06 Interference with and Protection of Streets
- 1.07 Safety
- 1.08 Existing Facilities
- A. Dimensions of Existing Structures
 - B. Proposed Pipe Location
 - C. Interference with Existing Works
 - D. Existing Utilities or Connections
 - E. Failure to Repair
 - F. Disturbance of Bounds
- 1.09 Work to Conform
- 1.10 Planning and Progress Schedules
- 1.11 Precautions During Adverse Weather
- 1.12 Temporary Heat
- 1.13 Electrical Energy
- 1.14 Certificates of Conformance
- 1.15 Patents
- 1.16 "Or Equal" Clause
- 1.17 Additional or Substitute Bonds
- 1.18 Separate Contracts
- 1.19 Payrolls of Contractor and Subcontractors
- 1.20 Payments by Contractor
- 1.21 "Dig Safe" Law
- 1.22 Fire Prevention and Protection
- 1.23 Dust Control
- 1.24 Disposal of Debris
- 1.25 Night, Saturday, Sunday and Holiday Work
- 1.26 Length of Work Day
- 1.27 Hurricane Protection
- 1.28 Reduction in Scope of Work
- 1.01 GENERAL PROVISIONS
- A. The duties and obligations imposed by these General Conditions will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty,
- B. Sections of Division 1, General Requirements govern the execution of the Work of all sections of the specifications.
- C. The Specifications are written in imperative and streamlined form. This imperative language is directed to the Contractor, unless stated otherwise.
- 1.02 DEFINITIONS
- A. Wherever the words as listed in subsection 1.01 of the AGREEMENT or pronouns used in their stead occur in the Contract Documents, they shall have the meanings as given in the AGREEMENT.
- 1.03 MATERIALS AND EQUIPMENT
- A. General
 - 1. Unless otherwise provided in the Contract Documents, only new materials and equipment shall be incorporated in the Work.
 - 2. As soon as possible after execution of the AGREEMENT, submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment proposed to be incorporated into the Work.
 - 3. When shop and working drawings are required as specified below, submit, prior to the submission of such drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or the supplier have the ability to furnish a product meeting the Specifications.
 - 4. Submit data relating to the materials and equipment proposed to be incorporated into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.

B. Handling

1. Handle, haul, and distribute materials and all surplus materials on the different portions of the Work, required to complete the Work in accordance with the Contract Documents.
2. Provide suitable storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished under this Contract, until the final completion and acceptance of the Work.
3. Pay all storage and demurrage charges by transportation companies and vendors.

C. Storage of Excavated Material

1. Place excavated materials and equipment to be incorporated in the Work so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work.
2. Materials shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

D. Inspection

1. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the inspection of the Engineer.
2. No material shall be processed or fabricated for the Work or delivered to the work site without prior concurrence of the Engineer.
3. Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor.
4. Defective materials and equipment shall be removed immediately from the site of the Work.

E. Inspection away from Site

1. If work to be done, away from the construction site, is to be inspected on behalf of the Owner during its fabrication, manufacture, or testing, or before shipment,

the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time, as determined solely by the Engineer, so that the necessary arrangements for the inspection can be made.

F. Samples

1. Submit samples of materials for tests, as the Engineer deems necessary to demonstrate conformance with the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed by the Engineer.
2. Furnish suitable molds for making concrete test cylinders. Except as otherwise expressly specified, the Owner shall make arrangements for, and pay for, the tests.
3. Pack samples so as to reach their destination in good condition, and label to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, notify the Engineer by letter that the samples have been shipped and properly describe the samples in the letter. Send letter of notification separate from the samples.
4. Submit data and samples, or place his orders, sufficiently early to permit consideration, inspection and testing before the materials and equipment are needed for incorporation in the Work. The consequences for failure to do so shall be the Contractor's sole responsibility.
5. In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., provide such samples of workmanship of wall, floor, finish, etc., as may be required.
6. After review of the samples, data, etc. the materials and equipment used for the Work shall in all respects conform therewith.

G. Shop Testing

1. When required, furnish to the Engineer in triplicate, sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to

materials, equipment performance ratings, and concrete data.

1.04 CONTRACTOR'S SHOP AND WORKING DRAWINGS

A. Submit shop drawings to the Engineer for review and approval.

B. All submittals will be identified as the Engineer may require and in the number of copies also as required by the Engineer.

C. The data shown on the Shop Drawings will be complete regarding quantities, dimensions, specified performance and design criteria, materials and other data as particular to the Work that the Contractor proposes to provide.

1.05 OCCUPYING PRIVATE LAND

A. Entering or occupying with men, tools, materials, or equipment, any land outside the rights-of-way or property of the Owner (except after written consent from the proper parties) will not be permitted. A copy of the written consent shall be given to the Engineer.

1.06 INTERFERENCE WITH AND PROTECTION OF STREETS

A. Obtain permits from the governing authorities prior to obstructing any portion of a street, road, or private way. If any street, road or private way is rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as ordered by the governing authorities.

B. Maintain streets, roads, private ways, and walks not closed in a passable and safe condition.

C. Provide at least 24 hours in advance, notice to the Owner, Police, Fire and School Departments in writing, with a copy to the Engineer, if the closure of a street or road is necessary. Cooperate with all Departments in the establishment of alternate routes and provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

1.07 SAFETY

A. Take all precautions and provide safeguards to prevent personal injury and property damage. Provide protection for all persons including but not limited to employees and employees of other contractors and subcontractors; members of the public; and employees, agents and representatives of the Owner, the Engineer, and regulatory agencies that may be on or about the Work. Provide protection for

all public and private property including but not limited to structures, pipes, and utilities, above and below ground.

B. Provide and maintain all safety equipment such as fences, barriers, signs, lights, walkways, guards and fire prevention and fire-fighting equipment.

C. Comply with all applicable Federal, State and local laws, ordinances, rules and regulations and lawful orders of all authorities having jurisdiction for the safety of persons and protection of property.

D. Designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This responsible person shall have the authority to take immediate action to correct unsafe or hazardous conditions and to enforce safety precautions and programs.

1.08 EXISTING FACILITIES

A. Dimensions of Existing Structures

1. Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the Work, verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

B. Proposed Pipe Location

1. Exterior pipelines will be located substantially as indicated on the Drawings, but the right is reserved to the Owner, acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings, etc., are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him for laying and jointing different or additional items where required.

2. Small interior piping is indicated diagrammatically on the Drawings, and the exact location is to be determined in the field. Piping shall be arranged in a neat, compact, and workmanlike manner, with a minimum of crossing and interlacing, so as not to interfere with equipment or access way, and, in general, without diagonal runs.

C. Interference with Existing Works

1. Conduct operations so as to interfere as little as possible with existing works. Develop a program, in cooperation with the Engineer and interested officials, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations therefrom are

expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing facilities for the shortest time when the demands on the facilities best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. Electrical connections should be coordinated with the Owner so as to minimize disruption of normal plant operations. Before starting work which will interfere with the operation of existing facilities, perform preparatory work and see that all tools, materials and equipment are made ready and at hand.

2. Repair utilities damaged by the Contractors operations during the progress of the work, and be responsible for correcting all damages to existing utilities and structures at no additional expense to the Owner. Contact the proper utility or authority to correct or make any changes due to utility or other obstructions during the work but the entire responsibility and expense shall be with the Contractor.

3. Make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.

4. Submit no claim for additional compensation by reason of delay or inconvenience in adapting his operations to the need for continuous flow of sewage.

D. Existing Utilities or Connections

1. The location of existing underground pipes, conduits, and structures, as shown, has been collected from the best available sources. The Owner, together with its agents, does not imply nor guarantee the data and information in connection with underground pipes, conduits, structures and such other parts as to their completeness, nor their locations as indicated. The Contractor shall assume that there are existing water, sewer, gas and other utility connections to each and every building enroute, whether they appear on the drawings or not. An expense and/or delay occasioned by utilities and structures, or damage thereof, including those not shown, shall be the responsibility of the Contractor, at no additional expense to the Owner.

2. Above ground utilities may be present in the areas of the proposed Work. Take all necessary actions and/or precautions, including, but not limited to, utility company notification and necessary relocations (both temporary and permanent), to insure proper protection of those aboveground utilities and appurtenances to be affected by his operations. All costs associated with

the aboveground utilities shall be paid by the Contractor at no additional expense to the Owner.

3. If and when encountered, existing utilities shall be properly supported and protected during the construction work and the Engineer shall be notified accordingly. The operation of existing utilities shall not be interrupted except with written permission of the operator and owner of such utilities. Allow ample time for all measures as may be required for the continuance of existing utility operations. Take extreme precautions to minimize disruption of utilities. Make prompt and full restitution for repairs by others for all disruptions caused by operations required to perform the Work.

4. Comply with all requirements of utility organizations involved.

E. Failure to Repair

1. Any emergency rising from the interruption of electric, telephone, gas, water, or sewer service due to the activities of the Contractor, shall be repaired by the Contractor as quickly as is possible.

2. If and when, in the opinion of the Owner, the Contractor is not initiating repair work as expeditiously as possible upon notification to do so, the Owner, may at his own option, make the necessary repairs using his own forces or those of others. The cost of such repairs shall be subtracted from the payments due to the Contractor.

F. Disturbance of Bounds

1. Replace all bounds disturbed during the construction operation, at no additional cost to the Owner. The bounds shall be relocated by a land surveyor approved by the Engineer and registered in the State that the Work is to be done.

1.09 WORK TO CONFORM

A. During its progress and on its completion, the Work shall conform to the lines, levels, and grades indicated on the Drawings or given by the Engineer and shall be built in strict accordance with the Contract Documents and the directions given from time to time by the Engineer.

B. All work done without instructions having been given therefore by the Engineer, without proper lines or levels, or performed during the absence of the Engineer, will not be estimated or paid for except when such work is authorized by the Engineer in writing. Work so done may be ordered uncovered or

taken down, removed, and replaced at the Contractor's expense.

1.10 PLANNING AND PROGRESS SCHEDULES

A. Before starting the Work and from time to time during its progress, as the Engineer may request, the Contractor shall submit to the Engineer a written description of the methods he plans to use in doing the Work and the various steps he intends to take.

B. Within 14 calendar days after the date of formal execution of the AGREEMENT, the Contractor shall prepare and submit to the Engineer (a) a written schedule fixing the dates on which additional drawings, if any, will be needed by the Contractor and (b) a written schedule fixing the respective dates for the start and completion of various parts of the Work. Each such schedule shall be subject to review from time to time during the progress of the Work.

1.11 PRECAUTIONS DURING ADVERSE WEATHER

A. During adverse weather and against the possibility thereof, take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required by the manufacturer of the material or equipment to be installed, protection shall be provided by use of tarpaulins, wood and building-paper shelters, or other suitable means.

B. During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging, or drying will result. Protected spaces shall be artificially heated by suitable means that will result in a moist or dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture will be warm throughout when used.

1.12 TEMPORARY HEAT

A. If temporary heat is required for the protection of the Work, provide and install suitable heating apparatus, provide adequate and proper fuel, and shall maintain heat as required.

B. Temporary heating apparatus shall be installed and operated in such manner that finished work will not be damaged.

1.13 ELECTRICAL ENERGY

A. Make all necessary applications and arrangements and pay all fees and charges for electrical energy for power and light necessary for the

proper completion of the Work and during its entire progress. Provide and pay for all temporary wiring, switches, connections, and meters.

B. Provide sufficient electric lighting so that all work may be done in a workmanlike manner when there is not sufficient daylight.

1.14 CERTIFICATES OF CONFORMANCE

A. Furnish to the Engineer, in the manner as directed and prior to actual installation, notarized certificates of conformance for all materials to be furnished under this Contract. The notarized certificates of conformance shall state that the material to be furnished meets or exceeds all requirements specified under the Contract Documents. When so directed, the manufacturer's notarized certificates of conformance, certifying that the materials meet the requirements specified shall accompany each shipment of material. Unless otherwise specifically specified and/or directed by the Engineer, all testing of materials required under this Contract shall be provided by the Contractor at no additional expense to the Owner.

1.15 PATENTS

A. Pay, at no additional expense to the Owner, all applicable royalties and license fees associated with the materials and construction methods to be used under this Contract. Defend all suits or claims for infringements of any patent rights, and save the Owner and Engineer harmless from loss on account thereof, except that the Owner shall be responsible for any such loss when a particular process, design, or product of a particular manufacturer (s) is specifically specified with no option to the Contractor. However, if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner.

B. Refer to Specification Section 1.07, Patents, regarding the Contractor's responsibilities for any patent rights associated with the materials and construction methods to be used under this Contract.

1.16 "OR EQUAL" CLAUSE

A. Whenever a material or article required is specified or shown on the drawings by using the name of the proprietary product of a particular manufacturer or vendor, any material or article which will perform adequately, in the Engineer's sole judgment and/or opinion, the duties imposed by the general design may be considered equal and satisfactory providing the material or article so proposed is of equal substance. It shall not be purchased or installed without his

written approval. In all cases new material shall be used in the project.

B. If more than one brand, name of material, device, or piece of equipment is shown or specified, each should be regarded as the equal of the other. Any other brand, make of material, device or equipment, which in the opinion of the OWNER and/or ENGINEER, is the recognized equal of that specified (considering quality, workmanship, and economy of operation), and is suitable for the purpose intended, may be accepted.

C. ENGINEER will be allowed a reasonable time within which to evaluate submittals for Substitute Items. ENGINEER will be the sole judge of acceptability. No "Or Equal" or Substitute Item will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any "or equal" or substitute. ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitutes proposed or submitted by CONTRACTOR and in making changes to the Contract Documents. Whether or not ENGINEER accepts a Substitute Item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed Substitute Item.

1.17 ADDITIONAL OR SUBSTITUTE BONDS

A. If at any time the Owner, for justifiable cause, shall be or become dissatisfied with any Surety or Sureties than upon the performance or payment bonds, the Contractor shall, within five (5) calendar days after notice from the Owner so to do, substitute an acceptable bond (or bonds) in such form and sum and signed by such other Surety or Sureties as may be acceptable to the Owner. The Contractor shall pay the premiums on such bonds with no additional expense to the Owner. No further payments shall be deemed due nor will be made until the new Surety or Sureties shall have furnished such as acceptable bond to the Owner.

1.18 SEPARATE CONTRACTS

A. The Owner reserves the right to let other contracts in connection with the construction of the contemplated work of this project or contiguous projects of the Owner. The Contractor, therefore, will afford any such other contractors reasonable opportunity for the introductions and storage of their materials and the execution of their work, will

properly connect and coordinate his work with theirs, and will not commit or permit any act which will interfere with the performance of their work.

B. Coordinate operations with those of other contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work.

C. It is essential that all parties interested in the project cooperate to the end that the entire project will be brought to a successful conclusion as rapidly as possible, but the Owner cannot guarantee that no interference or delay will be caused thereby. Interference and delay resulting from such cooperation shall not be basis of claims against the Owner.

1.19 PAYROLLS OF CONTRACTOR AND SUBCONTRACTORS

A. The Contractor and each of his Subcontractors shall prepare his payrolls on forms prescribed and in accordance with instructions to be furnished by the Owner. Within seven (7) days after the regular payment date of the payroll, the Contractor shall deliver to the Owner, with copies to the Engineer, a certified legible copy or copies of each such payroll. Each such payroll shall contain the statement required by the Federal Regulations issued pursuant to the "Anti-Kickback Statute", (48 Stat. 948; 18 U.S.C. 874; 40 U.S.C. 276C).

B. Carrying any person on his payrolls not employed by him will not be permitted. Carrying employees of a subcontractor on his payrolls will not be permitted, but such employees must be carried on the payrolls of the employing subcontractor.

C. Each Contractor or Subcontractor shall preserve his weekly payroll records for a period of three (3) years from the date of completion of the Contract. The payroll records shall set out accurately and completely the name, occupational classification, and hourly wage rate of each employee, hours worked by him during the payroll period and full weekly wages earned by him, and deductions made from such weekly wages and the actual weekly wages paid to him. Such payroll records shall be made available at all times for inspection by the Owner or his authorized representatives, the Engineer or by agents of the United States Department of Labor.

1.20 PAYMENTS BY CONTRACTOR

A. Pay for all traffic control, safety, transportation and utility services not later than the 20th day of the calendar month following that in which services are rendered. Reimbursable costs for services rendered, as specified in the Contract Documents, shall not be incorporated into partial payment

estimates until such time that the Contractor submits to the Engineer actual paid invoices from those in which services were rendered.

1.21 "DIG SAFE" LAW

A. Before proceeding with construction operations, the Contractor shall notify the State of Massachusetts Underground Plant Damage Prevention Systems (DIG SAFE at 1-888-344-7233), and shall make such supplemental investigations, including exploratory excavations, by hand digging, as he deems necessary to uncover and determine the exact locations of utilities and structures, and shall have no claims for damages due to encountering subsurface structures or utilities in locations other than that shown on the drawings, or which were made known to the Contractor prior to construction operations. The Contractor shall be responsible and liable for all damages to the existing utilities and structures.

1.22 FIRE PREVENTION AND PROTECTION

A. State and municipal rules and regulations with respect to fire prevention, fire-resistant construction and fire protection shall be strictly adhered to and all work and facilities necessary therefore shall be provided and maintained by the Contractor in an approved manner.

B. Provide fire protection equipment such as water tanks, hoses, pumps, extinguishers, and other materials, and apparatus, for the protection of the contract work, and adjacent property. Trained personnel experiences in the operation of all fire protection equipment and apparatus shall be available on the site whenever work is in progress, and at such other times as may be necessary for the safety of the public and the work.

1.23 DUST CONTROL

A. Exercise every precaution and means to prevent and control dust arising out of all construction operations from becoming a nuisance to abutting property owners or surrounding neighborhoods. Pavements adjoining pipe trench shall be kept clean of excess materials wherever and whenever directed by the Engineer. Repeated daily dust control treatment shall be provided to satisfactorily prevent the spread of dust until permanent pavement repairs are made and until earth stockpiles have been removed, and all construction operations that might cause dust have been completed. No extra payment will be made for dust control measures, compensation shall be

considered to be included in the prices stipulated for the appropriate items as listed in the Bid.

1.24 DISPOSAL OF DEBRIS

A. The materials from the demolition, and those used in the construction of the Work throughout the project, shall be deposited in such a manner so as to not endanger persons or the Work, and so that free access may be had at any time to all hydrants, gates and existing equipment in the vicinity of the work. The materials shall be kept trimmed-up so as to be of as little inconvenience as possible to the public travel and plant operations. All excavated materials not approved for backfill and fill, all surplus material, and all rock and boulders resulting from the excavations, shall be removed and satisfactorily disposed of off the site by the Contractor, at no additional expense to the Owner.

B. The materials being removed from the pipelines and manholes during the cleaning process shall be deposited in such a manner as to not endanger the public, plant personnel or persons performing the work. Such debris deposits may be of such nature, high in biological organic contents, or chemically aggressive that they will require proper disposal in a safe, health risk free, environment. Contact the Owner and Engineer and all agencies having jurisdiction thereof, for approval of debris disposal methods and locations of disposal, prior to disposing of any or all debris removed from pipe cleaning methods. All debris shall be removed and satisfactorily disposed of off the work site, at no additional expense to the Owner.

1.25 NIGHT, SATURDAY, SUNDAY AND HOLIDAY WORK

A. No work shall be done at night or on Saturdays, or Sundays or holidays without the prior written approval of the Owner and Engineer.

1.26 LENGTH OF WORK DAY

C. The Owner retains the right to restrict the Contractor to an eight-hour workday. Such

restrictions shall not be the basis for damages or claims against the Owner.

A. The Contractor's attention is also directed to the fact that should it be deemed necessary to perform various items of work during off-peak flow or traffic hours, early morning or late night hours, then he shall notify the Engineer a minimum of 24 hours in advance as to his intentions and reasons for the change in work hours. The Contractor shall be responsible for properly contacting and informing all involved parties of such a change in work hours. The Contractor shall not be entitled to any additional compensation from the Owner for any expenses that may be incurred by change of working hours and/or scheduling.

1.27 HURRICANE PROTECTION

A. Should hurricane warnings be issued, the Contractor shall take every practicable precaution to minimize danger to persons, to the work and to adjacent property. These precautions shall include closing all openings; removing all loose materials, tools and/or equipment from exposed locations; and removing or securing scaffolding and other temporary work.

1.28 REDUCTION IN SCOPE OF WORK

A. The Owner reserves the right to decrease the scope of the work to be done under this Contract and to omit any work should the Owner deem it to be in the public interest to do so. To this end, the Owner reserves the right to reduce the quantity of any items or omit all of any as set forth in the BID, either prior to executing the contract or at any time during the progress of the work. The Owner further reserves the right, at anytime during the progress of the work, to restore all or part of any items previously omitted or reduced. Exercise by the Owner of the above rights shall not constitute any ground or basis of claim for damages or for anticipated profits on the work omitted.

END OF SECTION

SECTION 00800**SUPPLEMENTARY CONDITIONS**

- 1.01 General
- 1.02 Limits of Normal Excavation
- 1.03 Covering Excavated Trench
- 1.04 Maintaining Trench Excavations
- 1.05 Disruption of Storm Drains
- 1.06 Land, Easements and Rights-of-Way
- 1.07 Cleaning Finished Work
- 1.08 Uniformed Police Details

1.01 GENERAL

- A. These Supplementary Conditions are requirements which amend or supplement the General Conditions specified elsewhere.
- B. The duties and obligations imposed by these Supplementary Conditions will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.
- C. Assertion of any claim for any additional compensation or damages on account of and/or the fulfillment of these Supplementary Conditions will not be allowed.

1.02 LIMITS OF NORMAL EXCAVATION

- A. In determining the quantities of excavation to which unit prices shall apply, the limits of normal width and depth of excavation shall be as described below, unless other limits are indicated in the Contract Documents.
- B. For pipes in trench, the normal width of the trench shall be measured between vertical planes which are a distance apart equal to the sum of 18 inches plus 1-1/3 times the nominal inside diameter of the pipe. If the width so computed is less than 3.0 feet, a width of 3.0 feet shall be taken as the normal width for payment. The normal depth shall be measured to a distance of 0.5 feet below the bottom of the pipe in earth and 0.5 feet in rock, unless there be a cradle underneath the pipe, in which case the normal depth shall be measured to the underside of the cradle. The trench width for the cradle shall be assumed to be that specified above for pipes in the trench.
- C. For concrete placed directly against undisturbed earth, the normal width and depth of the excavation for such concrete shall be measured to the neat lines of the concrete as indicated on the Drawings or as ordered.
- D. For concrete placed against rock surfaces resulting from rock excavation, the normal width and depth of the excavation shall be measured to 4 inches outside the neat lines of the concrete as indicated on the Drawings or as ordered.
- E. For other structures, except manholes as noted below, the normal width shall be measured between vertical planes 1.0 feet outside the neat lines of the several parts of the structure,

except that the width at any elevation shall be measured as not less than the width at a lower elevation. The normal depth shall be measured to the underside of that part of the structure for which the excavation is made.

- F. No additional width or depth of trenches excavated in earth or rock shall be allowed at standard circular manholes. The pay limit for rock removed outside proposed manholes shall commence one foot (1.0) outside the widest dimension of the structure or shall be the maximum connecting trench width, whichever is greater.
- G. Wherever bell holes are required for jointing pipe, they shall be provided without additional compensation over and above that resulting from measurements as above described.

1.03 COVERING EXCAVATED TRENCH

- A. In addition to the requirements in Section 00700 titled Interference with and Protection of Streets. Cover all open excavations when construction operations are suspended at the end of the day, or in excavated trenches where work is not actually in progress. Cover shall be capable of withstanding AASHTO H20-S16 loading. This cover shall consist of steel plates or some other satisfactory cover of adequate size and strength suitably held in place to keep all traffic out of excavations, all as verified in writing by the Contractor. The cover shall be laid over the excavation until it is backfilled.

1.04 MAINTAINING TRENCH EXCAVATIONS

- A. The length of trench opened at any time, from point where ground is being broken to completed backfill, and also the amount of space in streets or public and private lands occupied by equipment, trench, and supplies, shall not exceed the length of space considered reasonably necessary and expedient by the Engineer. In determining the length of open trench or spaces for equipment, materials, supplies and other necessities, the Engineer will consider: the nature of the lands or streets where work is being done; types and methods of construction and equipment being used; inconvenience to the public or to private parties; possible dangers; and other proper matters. All work must be constructed with a minimum inconvenience and danger to the public and all other parties concerned.
- B. Whenever any trench obstructs pedestrian and vehicular traffic in or to any public street, private driveway or property entrance, or on private property, the Contractor take such means as may be necessary to maintain pedestrian and vehicular traffic and access. Until such time as the work may have attained sufficient strength to support backfill, or if for any other reason it is not expedient to backfill the trench immediately, construct and maintain suitable plank crossing and bridges to carry essential traffic in or to the street, driveway or property in question, as specified or directed.
- C. Suitable signs, lights, and such items required by Police Authorities to direct traffic, shall be furnished and maintained by the Contractor at his own expense, unless pay items are provided for in this specification.
- D. Keep streets and premises free from unnecessary obstructions, debris and all other materials. The Engineer may, at any time, order all equipment, materials, surplus from excavations, debris and all other materials lying outside that length of working space, promptly removed. Should the Contractor fail to remove such material within 24 hours after notice to remove the same, the Owner may cause any part or all of such materials to be removed by such persons as he may employ, at the Contractor's expense; and may

deduct the costs thereof from payments which may be or may become, due to the Contractor under the Contract. In special cases, where public safety urgently demands it, the Owner may cause such materials to be removed at the Contractor's expense without prior notice.

1.05 DISRUPTION OF STORM DRAINS

- A. Portions of the Work may be located in areas that are serviced by storm drains. Take extreme precaution to minimize disruption of the drains, and repair and/or make restitution for repairs by others for all disruptions caused by the construction operations.

1.06 LAND, EASEMENTS, AND RIGHTS-OF-WAY

- A. A portion of the work may be located within easements and/or rights-of-way, obtained or which will be obtained by the Owner, through private property. On all other lands, the Contractor has no rights unless he obtains them from the proper parties.
- B. Prior to issuance of the Notice to Proceed, the Owner shall obtain all land, easements and rights-of-way necessary for carrying out and for the completion of the work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.
- C. The Owner shall provide to the Contractor information, which delineates and describes the lands owned and rights-of-way acquired.
- D. The Contractor shall provide at his own expense and without liability to the Owner any additional land and access thereto that the Contractor may desire for temporary construction facilities or for storage of materials.
- E. If however, lands, easements or rights-of-way cannot be obtained before work on the project begins, the Contractor shall begin his work upon such land, easements or rights-of-way as have been previously acquired by the Owner, and no claims for damages whatsoever will be allowed by reason of its inability to procure the lands, easements, or rights-of-way for the said work, the Contractor shall not be entitled to make or assert a claim for damages by reason of the said delay, or to withdraw from the Contract except by consent of the Owner. Time for completion of work will be extended to such time as the Owner determines will compensate for the time lost by such delay, such determination to set forth in writing.

1.07 CLEANING FINISHED WORK

- A. After the work is completed, the pipes, manholes and structures shall be carefully cleaned free of debris and dirt, broken masonry, and mortar, and left in first class condition, ready to use. All temporary or excess materials shall be disposed of off-site and the work left broom clean, to the satisfaction of the Engineer.

1.08 UNIFORMED POLICE DETAILS

- A. When so directed, the Contractor shall coordinate with the Owner to make all arrangements with the Town of Clinton, Police Department to obtain any necessary police details. Payment will be covered by the Owner.

END OF SECTION

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DIVISION 1

GENERAL REQUIREMENTS

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Work covered by the Contract, listing of Owner, Project location, Engineer, Designated Agent, Sequence requirements, the Contractor's use of the premises and Owner's occupancy requirements.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work to be done under this contract consists of furnishing all necessary labor, materials and equipment required for reconstruction and streetscape improvements along High Street and Church Street.
- B. The work will include full depth pavement reconstruction, pavement milling, new granite curbing, cement concrete sidewalks and curb ramps, new crosswalks, ornamental street lighting, irrigation system, tree planting, landscaping and various streetscape elements, pavement markings and signs, repair/replacement of sidewalk slabs above an existing basement area, and other items included in this contract to complete the work.
- C. All work under this contract shall be done in conformance with the Massachusetts Department of Transportation 2020 Standard Specifications for Highways and Bridges, the October 2017 Construction Standard Details, the 2015 Overhead Signal Structure and Foundation Standard Drawings; MassDOT Traffic Management Plans and Detail Drawings; the latest Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways with Massachusetts Amendments; the 1990 Standard Drawings for Signs and Supports; the 1968 Standard Drawings for Traffic Signals and Highway Lighting; the latest edition of American Standard for Nursery Stock; the Plans and these Special Provisions.
- D. References within the Standard Specifications to MassDOT, the Department, or the Engineer shall, for the purposes of this Contract, be construed to mean the Town of Clinton or its designated representative.
- E. The work is more particularly indicated, shown or described in the Drawings, Specifications, and other Contract Documents.

1.03 OWNER

- A. The Town of Clinton
242 Church Street
Clinton, Massachusetts, 01510
Telephone: 978-365-4119
Contact: Michael J Ward, Town Administrator

1.04 PROJECT LOCATIONS

- A. High Street, from Union Street to Water Street, approximately, 1860 feet
- B. Church Street, from Walnut Street to School Street, approximately 820 feet
- C. Union Street at the intersection of High Street, approximately 200 feet

1.05 ENGINEER

- A. BETA Group, Inc.
315 Norwood Park South
Norwood, Massachusetts 02062
Telephone: 781-255-1982
Fax: 781- 255-1974
Contact: Thomas Loughlin, P.E., Project Manager

1.06 TOWN'S DESIGNATED AGENT

- A. Christopher McGown, Superintendent of Public Works

1.07 WORK SEQUENCE

- A. In order that Work may be conducted with minimum inconvenience to the public and, work under this Contract may be coordinated with other work which may be under construction or contemplated, and that work under the Contract may conform to conditions which it has been undertaken or conditions attached to a right-of-way or particular location for this work, the Engineer may determine the point or points and time or times when portions of work will commence or be carried on and may issue orders pertaining to the work sequence, relative to the rate of progress on several portions of the work.

1.08 CONTRACTOR USE OF PREMISES

- A. The Contractor's use of premises shall be within the limits shown on the Drawings and as defined in Section 00500 – Contract Agreement, for the performance of the Work.
 - A. The Contractor shall assume full responsibility for security of all materials and equipment on the site, including those of his subcontractor's.
 - B. If directed by the Owner, the Contractor shall move any stored items that interfere with operations of the Owner.
 - C. Obtain and pay for use of additional storage or work areas, if needed to perform the Work.

1.09 OWNER OCCUPANCY REQUIREMENTS

Unless otherwise specifically approved, all roadways within the project area must remain in full service at all times throughout the duration of the project. Also, access to properties must be maintained.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE

- A. The purpose of this section is to define the basis of measurement and payment for the unit price or lump sum items listed in SECTION 00300, BID PROPOSAL.

1.02 PAYMENT ITEMS

- A. Work Items of this Project are referenced with Items Numbers and Item Descriptions similar to those currently in use by the MassDOT, Highway Division.

1.03 BASIS OF MEASUREMENT AND PAYMENT

- A. Method of Measurement and Basis of Payment for Work Items shall be as called for under the appropriate section of the MHD Standard Specifications, unless modified in Sections 02500, Special Provisions and 02550, Construction Specifications.

END OF SECTION

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SECTION 01050**FIELD ENGINEERING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Survey work and other field engineering responsibilities of the Contractor.

1.02 REQUIREMENTS

- A. The Contractor shall be responsible for field survey, layout of the work and the establishing of lines and grades for his use.
- B. Establish elevations, lines, levels, reference marks, batter boards, etc., required during the progress of the Work. Verify such marks by instrument to confirm accuracy.
- C. Locate and protect established survey control and reference points.
- D. Make, check, and be responsible for all measurements and dimensions necessary for the proper construction of the Work.
- E. The Engineer will be permitted to check the lines, elevations, reference marks, batter boards, etc., set by the Contractor. The Contractor shall correct any errors found in lines, elevations, reference marks, batter boards, etc. Such a check shall not be construed as approval of the Contractor's work and shall not relieve or diminish the responsibility of the Contractor for the accurate construction and completion of the Work.
- F. Control datum for survey shall be a relative one per street established by the Contractor.

1.03 QUALITY ASSURANCE

- A. The Contractor shall employ a Civil Engineer or Land Surveyor registered in the State of Massachusetts, acceptable to the Owner.
- B. The Contractor shall submit a certificate signed by the Contractor's Engineer or Land Surveyor stating elevations and locations of the Work are in conformance with the Contract Documents.

**PART 2 PRODUCTS
NOT USED****PART 3 EXECUTION
NOT USED****END OF SECTION**

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SECTION 01200

PROJECT MEETINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Administrative and procedural requirements for project meetings.

1.02 PRECONSTRUCTION CONFERENCE

- A. Mandatory Pre-construction conference will be held at the time and place specified in the Notice to Bidders.
- B. The pre-construction conference will be scheduled and administered within fourteen (14) calendar days after the dated "Notice to Proceed". The Contractor shall be prepared to address such topics as projected construction schedules, major personnel, critical work areas, construction facilities and shop drawing submittals.

1.03 PROGRESS MEETINGS

- A. The Engineer will schedule and administer progress meetings and specially called meetings throughout the duration of the Work at period intervals.
- B. The time and location of such meetings shall be designated by the Engineer and shall be convenient for all parties involved.
- C. If needed, Engineer will prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

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SECTION 01300**SUBMITTALS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for submission of schedules and shop drawings.

1.02 PROGRESS SCHEDULE

- A. Within fourteen (14) calendar days after execution of the Contract Documents, the Contractor shall submit to the Engineer for review a construction progress schedule conforming to requirements specified. This schedule should show the proposed dates of commencement and completion of each of the various subdivisions of work required under this Contract and the anticipated monthly percentage of completion based on the total contract price. The Contractor shall be responsible for updating and/or revising this schedule whenever directed by the Engineer throughout the duration of the Contract.
- B. Special attention is directed to the requirement that the Contractor shall start the Work, as specified under this Contract, no later than thirty (30) calendar days after the execution of the Contract Documents, unless otherwise authorized by the Owner. The Contractor shall comply with all pre-construction requirements as specified. The Owner reserves the right to delay the commencement of the Work or any part thereof, if the specified requirements as determined by the Engineer have not been satisfied. The Owner further reserves the right to limit or, delay construction, or certain activities thereof, in certain areas of the Contract should the Owner deem it to be in the public's best interest and/or safety to do so.
- C. The Contractor shall contact the appropriate town or city authorities concerning any public or semi-public events that may occur during the construction period that may affect construction. The Contractor alone shall be responsible for arranging his construction sequence to conform to any restrictions these events may impose. No claims for extras will be allowed because of any delay, extra materials handling, extra excavation, etc. caused by the imposed restrictions. However, additional time may be granted for completion of the work to compensate for delays caused by said restrictions.

1.03 SHOP DRAWINGS

- A. Submit six (6) copies of shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated especially for the Contract, and materials and equipment for which such drawings are specifically requested.
- B. A maximum of two (2) submittals of each shop drawing will be reviewed by the Engineer. If more submittals are required due to the Contractor's neglect or failure to fulfill the requirements of the Contract plans and/or specifications, or to make corrections or modifications required by the Engineer in the review of the first two submittals, the Engineer will review the submittal and the Contractor will be responsible for the cost of the review, as determined by the Owner based on the Engineer's documentation of time

and rates for additional services established in the Engineering Agreement between the Owner and the Engineer.

- C. If re-submittals on shop and working drawings are required, the Engineer will retain three (3) copies and three (3) copies will be returned to the Contractor. When re-submittals are returned to the Engineer, six copies of the complete submittal shall again be required.
- D. Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When the dimensions are of particular importance, or when specified, the drawings shall be certified by the manufacturer or fabricator as correct for the Contract. The Contractor shall also be required to certify on the submitted drawings or catalog cuts that the equipment or the assembly are accepted by him and in conformance with the Plans and Specifications.
- E. When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted in place of shop and working drawings.
- F. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings to eliminate delay to the Work due to the absence of such drawings. All shop and working drawings must be submitted to the Engineer within thirty (30) calendar days prior to incorporation into the Work, unless otherwise permitted by the Engineer. Prior to the submittal of any shop drawings, the Contractor shall submit a schedule of proposed shop drawing transmittals. The schedule shall identify the subject matter of each transmittal, the corresponding specification section number and the proposed date of submission. Prior to and during the progress of the Work the schedule shall be revised and resubmitted as requested by the Engineer.
- G. No material or equipment shall be purchased or fabricated for the Contract until the required shop and working drawings have been submitted as hereinabove provided and reviewed for conformance to the Contract requirements. All such materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by said drawings.
- H. Until the necessary review has been made, the Contractor shall not proceed with any portion of the Work (such as the construction of foundations) for which review is required.
- I. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24 inch by 36 inch sheets, except those which are made by changing existing standard shop and working drawings. All drawings shall be clearly marked with the names of the Owner, Contractor, and building, equipment, or structure to which the drawing applies, and shall be suitable numbered. Submitted shop drawings shall be accompanied by a multi-part letter of transmittal provided by the Engineer, and completed by the Contractor as directed by the Engineer.
- J. Only drawings which have been checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all

respects. All drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer; other drawings shall be returned for correction.

- K. If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations in his letter of transmittal.
- L. The review of shop and working drawings by the Engineer will be general only, and nothing contained in this Section shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance as specified.
- M. Should the Contractor submit equipment that requires modifications to the structures, piping, electrical conduit, wires, appurtenances, or layouts etc., either existing or as detailed on the Drawings, he shall also submit details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the Owner, shall do the work necessary to make such modifications.
- N. The Contractor shall furnish additional copies of shop drawings or catalog cuts when so requested.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

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SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements for Contractor's quality control of products, suppliers, manufacturers, services, site conditions, and workmanship, to produce work of the specified quality.

1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Comply fully with manufacturers' instructions, including each step in sequence.
- B. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- D. Perform work by persons qualified to produce workmanship of specified quality.
- E. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.03 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications sections for review.
- B. Acceptable samples represent a quality level for the Work.
- C. Where field sample is specified to be removed, clear area only after field sample has been accepted by the Engineer.

1.04 CERTIFIED WELDERS

- A. Structural welds shall be made only by operators who have been qualified by tests, as prescribed in the "Standard Qualification Procedure" of the American Welders Society, to perform the type of work required.
- B. Pipe welds shall be made only by operators who have been qualified by the National Certified Pipe Welding Bureau and each operator's qualification record shall be submitted to the Engineer before any work is performed.
- C. Shop welding shall be in accordance with the "Code for Welding in Building Construction".

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

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SECTION 01410**TESTING LABORATORY SERVICES****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Qualification, duties and responsibilities of testing laboratories. Also, coordination and scheduling are responsibilities of the Contractor.
- B. Related Sections
- C. Section 01600 - Materials and Equipment

1.02 PAYMENT PROCEDURES

- A. Initial Testing: Unless otherwise specified herein, the Owner will pay for additional initial testing services required by the Engineer.
- B. Retesting: When initial tests indicate noncompliance with the Contract Documents, subsequent retesting occasioned by the noncompliance shall be performed by the same testing agency, and costs thereof will be deducted by the Owner from the Contract Sum.
- C. Contractor's Testing: Inspecting and testing performed exclusively for the Contractor's convenience or as required of him by the technical specifications shall be the sole responsibility of the Contractor.

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. E-329-90, Use in the Evaluation of Testing and Inspection Agencies as Used in Construction.

1.04 REQUIREMENTS

- A. Work included:
 - 1. Cooperate with the Owner's selected testing agency and all others responsible or testing and inspecting the Work.
 - 2. Provide other testing and inspecting as specified to be furnished by the Contractor in this Section and/or elsewhere in the Contract Documents.
 - 3. Where no testing requirements are described, but the Owner directs testing, the Contractor shall provide testing under the requirements of this Specification.

1.05 QUALITY ASSURANCE

- A. The testing laboratory will be qualified to the Owner's approval in accordance with ASTM E329-90.
- B. Regulatory requirements
 - 1. Testing, when required, will be in accordance with all pertinent codes, regulations, and with selected standards of the American Society for Testing and Materials.

2. Regulatory Requirement Inspections and tests required by codes or ordinances, or by a plan approved authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with pertinent provisions of Section 01600 - Materials and Equipment.
- B. Promptly process and distribute, to the Engineer, required copies of test reports and instructions to assure necessary retesting and replacement of materials with the least possible delay in progress of the Work.

1.07 SCHEDULING

- A. Establishing schedule
 1. By advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.
 2. Provide all required time within the construction schedule.
 3. Coordinate testing activity with the appropriate testing laboratory.
- B. Revising schedule
 1. When changes of construction schedule are necessary during construction, coordinate all such changes with the testing laboratory as required.
- C. Adherence to schedule
 1. When the testing laboratory is ready to test according to the established schedule, but is prevented from testing or taking specimens due to incompleteness of the Work, all extra charges for testing attributable to the delay may be back-charged to the Contractor and shall not be borne by the Owner.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

- A. Representatives of the testing laboratory shall have access to the Work at all times and at all locations where the Work is in progress. Provide facilities for such access to enable the laboratory to perform its functions properly.
- B. All specimens and samples for testing, unless otherwise provided in the Contract Documents, shall be taken by the testing personnel. All sampling equipment and personnel will be provided by the testing laboratory. All deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

END OF SECTION

SECTION 01510**TEMPORARY UTILITIES****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for temporary utilities required during construction.

1.02 GENERAL REQUIREMENTS

- A. The Contractor is responsible for payment of all costs associated with the installation and operation of all temporary utilities necessary for the completion of the work. The Contractor shall arrange with the Engineer and Owner methods of determining monthly utility costs for Temporary Utilities prior to connection of any temporary systems. The Contractor shall pay the Owner on a monthly basis for all temporary utility costs. The Temporary Utilities to be paid by the Contractor include, but are not limited to the following: Electricity, Water, Sanitary, Heating, Ventilation, Plumbing and other services required to complete the work.

1.03 TEMPORARY SANITARY FACILITIES

- A. Provide adequate sanitary facilities for the use of those employed on the Work. Sanitary facilities shall be made available when the first employees arrive on the site of the Work, be properly secluded from public observation, and be maintained during the progress of the Work in suitable numbers.
- B. Maintain sanitary facilities in an orderly and sanitary condition at all times and enforce their use. Rigorously prohibit the committing of nuisances on the site of the Work, on the lands of the Owner, or any adjacent property.

**PART 2 PRODUCTS
NOT USED****PART 3 EXECUTION
NOT USED****END OF SECTION**

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SECTION 01560**TEMPORARY CONTROLS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for cleaning, maintenance of the project site, barriers and fences required during construction.

1.02 CLEANING DURING CONSTRUCTION

- A. Contractor shall perform clean-up operations during construction as herein specified.
 - 1. Control accumulation of waste materials and rubbish; periodically dispose of off-site. Bear all costs, including fees resulting from disposal.
 - 2. Maintain project in accordance with all local, State and Federal Regulatory Requirements.
 - 3. Store volatile wastes in covered metal containers, and remove from premises.
 - 4. Prevent accumulation of wastes that create hazardous conditions.
 - 5. Provide adequate ventilation during use of volatile or noxious substances
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.
 - 4. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
 - 5. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and wind blown debris, resulting from construction operations.
 - 6. Provide on-site containers for collection of waste materials, debris, and rubbish.
 - 7. Remove waste materials, debris, and rubbish from the site periodically and dispose of at legal disposal areas off the construction site.
 - 8. During its progress, the work and the adjacent areas affected thereby shall be kept cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
 - 9. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes, structures, work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc. shall, upon completion of the work, be left in a clean and neat condition.

1.03 DUST CONTROL

- A. Provide adequate means for the purpose of preventing dust caused by construction operations throughout the period of the construction contract.
- B. This provision does not supersede any specific requirements for methods of construction or applicable general conditions or performance obligations of the Contractor.

1.04 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
- D. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- E. Construct sediment control devices for discharge from dewatering trenches.
- F. Construct all sedimentation control devices shown on the plans.

1.05 NOISE CONTROL

- A. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.
- B. Execute construction work by methods and by use of equipment which will reduce excess noise.
 - 1. Equip air compressors with Silencers, and power equipment with mufflers.
 - 2. Manage vehicular traffic and scheduling to reduce noise.

1.06 POLLUTION CONTROL

- A. Special care shall be taken to prevent contamination or muddying up or interfering in any way with the stream flows, if any along the line of work. No waste matter of any kind will be allowed to discharge into the stream flows or impounded water of any pools or other bodies of water.

1.07 SURFACE WATER CONTROL

- A. Take all precautions to prevent damage to the work or equipment by high waters or by storms. The Engineer with the approval of the Owner may prohibit the carrying out of any work at any time when in his judgment, high water or storm conditions are unfavorable or not suitable, or at any time, regardless of the weather, when proper precautions are not being taken to safeguard previously constructed work or work in progress.
- B. In case of damage caused by the failure of the Contractor to take adequate precautions, the Contractor shall repair or replace equipment damaged and shall make such repairs or rebuild such parts of the damaged work, as the Engineer may require, at no additional expense to the Owner.

1.08 BARRIERS AND ENCLOSURES**A. Fences and Barricades**

1. Provide and maintain temporary fences, barriers, lights, guardrails, and barricades as indicated in the Contract Documents, or as necessary to secure the Work and adjacent property, and protect persons and property.
2. Obtain necessary approvals and permits and provide temporary expedients as necessary to accommodate tasks requiring items mentioned herein.

B. Protection of Trees

1. The Contractor shall take care not to harm trees along the sides of roads or within the existing facility in which the construction work is to be done or trees on adjacent lands except as indicated on the drawings or with the written permission of the Owner and any other owner of the trees involved. Care shall be taken not to cut tree roots so as to harm the growth of trees to remain.
2. If, in the opinion of the Engineer, any trees damaged during construction can be repaired, the Contractor shall satisfactorily repair same at no further cost to the Owner.
3. If, in the opinion of the Engineer, any tree damaged during construction cannot be repaired and should be removed, the Contractor shall satisfactorily remove and replace, in kind, same at no further cost to the Owner.

**PART 2 PRODUCTS
NOT USED**

**PART 3 EXECUTION
NOT USED**

END OF SECTION

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SECTION 01570**TRAFFIC REGULATIONS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for traffic control for the duration of the Contract.

1.02 REFERENCES

- A. Manual of Uniform Traffic Control Devices (MUTCD) latest edition, including published revisions.

1.03 PERFORMANCE REQUIREMENTS

- A. The Contractor shall prepare and submit to the Engineer a proposed work schedule which complies with the plans and specifications. No work shall start until the Engineer's approval of the schedule is received.
- B. Contractor shall have the sole responsibility for the maintenance and protection of traffic.
- C. No construction will be permitted within 300 feet of a school, day care center, or day camp when children are either arriving or departing the facility. The actual hours involved will be obtained by the Contractor from the respective facility.
- D. An authorized representative of the Contractor shall be available on a 24-hour basis for the duration of the Contract for the purpose of correcting construction related impediments or hazards.

1.04 SUBMIT TRAFFIC PLANS

- A. In accordance with SECTION 01300 – SUBMITTALS, submit a traffic plan delineating the requirements of this section, the Contract Drawings, and the Town of Westwood.
- B. Traffic control plans shall detail all typical work zones and detours.

1.05 SITE CONDITIONS

- A. Replace at no cost to the Owner pavement markings, legends and lane arrows removed or damaged by the construction operation.
- B. Restore temporary detours to original condition.
- C. Replace traffic signal loops damaged during construction within 72 hours.

1.06 SCHEDULING

- A. The Contractor shall minimize the construction impacts to the traveling public and abutting property owners by limiting the extent of roadway excavation and requiring the restoration

of a weather-tight pavement surface as stipulated below. All proposed underground installations (utilities, drainage, sewer, etc.) must be in place prior to the beginning of roadway excavation.

- B. The Owner reserves the right to alter the lengths of excavation and other operations in order to ensure the safety of the traveling public and abutting property owners.

PART 2 PRODUCTS

2.1 TRAFFIC CONTROL DEVICES

- A. Devices shall be in accordance with the MUTCD.

PART 3 EXECUTION

3.1 INSTALLATION OF TRAFFIC CONTROL DEVICES

- A. Installations shall be in accordance with the MUTCD.

END OF SECTION

SECTION 01600**MATERIALS AND EQUIPMENT****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for delivery, storage, handling and installation of systems, materials, manufactured units, equipment, components, and accessories used in the work.

1.02 DELIVERY

- A. Refer to Specifications' Sections for requirements pertaining to delivery and handling of materials and equipment.
- B. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturers' unopened containers or packaging, dry.
- C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- D. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct, and products are undamaged.

1.03 STORAGE AND PROTECTION

- A. Refer to Specifications' Sections for requirements pertaining to storage and protection of materials and equipment.
- B. Store products in accordance with manufacturers' instruction, with seals and labels intact and legible. Store sensitive products in weather tight enclosures; maintain within temperature and humidity ranges required by manufacturers' instructions.
- C. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- E. Arrange storage to provide access for inspection. Periodically inspect to assure that products are undamaged and are maintained under required conditions.

1.04 INSTALLATION STANDARDS

- A. Comply with Specifications and referenced standards as minimum requirements.
- B. Components required to be supplied in quantity within a Specification Section shall be the same and shall be interchangeable.

- C. Do not use materials and equipment removed from existing structures, except as specifically required, or allowed, by the Contract Documents.
- D. Perform work by persons qualified to produce workmanship of specified quality.
- E. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
- F. When work is specified to comply with manufacturers' instructions, submit copies as specified in Section 01300 - Submittals, distribute copies to persons involved, and maintain one set in field office.
- G. Perform work in accordance with details of instructions and specified requirements.

PART 2 PRODUCTS
NOT USED

PART 3 EXECUTION
NOT USED

END OF SECTION

SECTION 01800**MAINTENANCE****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Procedures for maintaining work completed under this Contract.

1.02 MAINTENANCE PERIOD

- A. The general maintenance period for all construction or materials under this Contract shall be one (1) year subsequent to the date of the acceptance of the work by the Owner, or as provided by other sections of this Specification.
- B. If the Owner puts any structure or equipment to use prior to acceptance of all work under the Contract, the maintenance period for such structures or equipment shall be calculated from the time use begins.
- C. Contractor agrees to replace the material which does not conform to the Contract requirements, and to repair any damage of material or work without cost to the Owner, to satisfaction of Engineer, in conformance with Contract Documents provided orders for replacement and/or repairs are received in writing by the Contractor within the one year period.
- D. This Section shall in no way limit the duration of the Contractor's responsibility for the correction of any defect due to workmanship or materials provided by the Contractor which are not in compliance with the Contract Documents.

1.03 ABUSE OF WORK

- A. Contractor is not obligated to perform work of replacement or repair that he may prove is required because of abuse by parties other than the Contractor, after the date the Owner puts to continuous use the work requiring replacements or repair, or after date the Owner has approved the Certificate of Completion.

1.04 EMERGENCY REPAIRS

- A. If the Owner deems necessary, the Owner shall order replacement or repairs be undertaken within 24 hours.
- B. If the Contractor delays or fails to make the ordered replacement or repairs within the time specified, the Owner shall have the right to make such replacements or repairs and the expense shall be deducted from moneys due the Contractor, or moneys of the Contractor retained by the Owner.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

DIVISION 2

SECTION 02500

SPECIAL PROVISIONS

SCOPE OF WORK

The project includes the reconstruction of High Street, from the intersection of Union Street to the intersection of Water Street, approximately 1,860 feet. The project will also include the reconstruction of Church Street from the intersection of Walnut Street to the intersection of School Street, approximately 820 feet. The project also involves the reconstruction of a segment of Union Street, for approximately 200 feet. The total length of the project is approximately 2,880 feet. The work will include full depth pavement reconstruction, pavement milling, new granite curbing, cement concrete sidewalks and curb ramps, new crosswalks, ornamental street lighting, irrigation system, tree planting, landscaping and various streetscape elements, pavement markings and signs, repair/replacement of sidewalk slabs above an existing basement area, and other items included in this contract to complete the work.

All work under this contract shall be done in conformance with the Massachusetts Department of Transportation 2020 *Standard Specifications for Highways and Bridges*, the *October 2017 Construction Standard Details*, the *2015 Overhead Signal Structure and Foundation Standard Drawings*; *MassDOT Traffic Management Plans and Detail Drawings*; the latest *Manual on Uniform Traffic Control Devices (MUTCD)* for Streets and Highways with *Massachusetts Amendments*; the *1990 Standard Drawings for Signs and Supports*; the *1968 Standard Drawings for Traffic Signals and Highway Lighting*; the latest edition of *American Standard for Nursery Stock*; the Plans and these Special Provisions.

Appendix Documents

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|---|--|
| A | Prevailing Wage Rates |
| B | Pavement Cores and Location Map |
| C | Existing Lighting System Electrical Plan |
| D | Sidewalk Vault Photographs |
| E | RAM Report – 329 High Street |

References within the Standard Specifications to MassDOT, the Department, or the Engineer shall be construed to mean the Town of Clinton or its designated representative.

Notice to Contractors

This Document contains a Release Abatement Measures (RAM) report as part of Appendix E. Contractors are advised to read this report. It is expected that some excavations within the limits described in the report could be affected. There are provisions for testing, handling and disposing of contaminated soils and ground water in this Contract.

ARCHITECTURAL ACCESS BOARD TOLERANCES

The Contractor is hereby notified that they are ultimately responsible for constructing all project elements in strict compliance with the current AAB/ADA rules, regulations, and standards.

All construction elements in this project associated with sidewalks, walkways, wheelchair ramps and curb cuts are controlled by 521CMR - Rules and Regulations of the Architectural Access Board (AAB). The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope or for dimensions less than the minimum dimensions.

Contractors shall establish grade elevations at all wheelchair ramp locations and shall set transition lengths according to the appropriate table in the Construction Standards or to the details shown on the plans.

ORDERING OF MATERIALS AND DRAWINGS

Within thirty (30) days of receipt of the Contract notice to proceed (NTP) the Contractor shall provide the Engineer with written evidence, in the form of a purchase order (if applicable), the following information:

1. Shop drawings and/or catalog cuts have been requested for all materials for which shop drawings or other required information is required for this contract.
2. That any other required equipment for which shop drawings are not required have been ordered; and,
3. That the granite curbing, drainage structure frames, grates, covers and other such castings and materials, necessary to complete the project, have been ordered from a supplier or manufacturer.

The Contractor shall further provide the Engineer written evidence within thirty (30) days of receipt of the Contract NTP that these orders have been confirmed in writing by the manufacturer with appropriate delivery dates for a timely completion of the project. These confirmations of orders will become part of the project records.

Failure to comply with any of the ordering requirements shall nullify a request for an extension of the project completion date because of late delivery of materials.

SHOP DRAWING SUBMITTAL (Supplementing Subsection 5.02)

The following is a list of items and materials that require shop drawing or catalog cut approval.

Street Lighting

- Lighting luminaires, and ballasts (manufacturer's data and shop drawings)
- Light poles, bases, and bolting details (manufacturer's data and shop drawings)
- Pre-cast foundations (Stamp by Massachusetts Professional Engineer)
- Handholes (catalog cuts)

Hanging plant bracket assembly, banner brackets, and flag bracket (catalog cuts)

Irrigation System

Water pipe, tubing, emitters, and sleeves (manufacturer's data and catalog cuts)
Handholes, controls, valves, and other electrical and mechanical equipment (catalog cuts)
Irrigation Enclosures and associated valves and equipment,
And all other equipment and materials listed in the Irrigation Item Specifications.

Streetscape Improvements

Benches, bicycle hoops (catalog cuts)
Flexible Porous Pavement (material samples)
Granite Cobble Stone Pavers (material samples)

Other

Health and Safety Plan
MassDOT approved pavement and concrete mix designs
Construction Sequence and Traffic Management Plans

Within 15 days after receipt of an approved shop drawing for any item, the Contractor shall provide the Engineer written proof that he has ordered such approved materials required on the subject contract and a written confirmation of such order and delivery schedule from the manufacturer of the particular item. This delivery schedule shall be appropriate for timely completion of this project.

All shop drawings and related calculations shall be stamped by a Professional Engineer registered in Massachusetts.

MATERIALS REMOVED AND STACKED (Supplementing Subsections 580.64, 630.63)

Materials directed to be removed and stacked which are the property of the Town of Clinton shall be removed, transported and stacked at the Town of Clinton Department of Public Works Yard, 99 Woodlawn Street, Clinton, MA. The contractor shall coordinate with Chris McGown, at (978) 365-4110, 72 hours prior to a proposed delivery of materials. All materials shall be neatly stacked, transported, and restacked within the area designated by the Town.

Materials directed to be removed and stacked, which are privately owned, shall be removed, transported, and stacked on the abutting private owner's property, within the project limits.

If the Engineer determines that any of the stacked materials are unsuitable for re-use by the Town, or if other private owners decide to abandon part or all of their materials, such materials shall become the property of the Contractor and shall be disposed of away from the site in a legal manner. Unless otherwise provided for the cost of this work shall be considered incidental to the various items of this contract.

PERMITS AND LICENSES (Supplementing Subsection 7.03)

Before any electrical work is performed, and within 10 days after the Contract NTP is issued, the Contractor shall submit a list, as well as copies, of the current electrical licenses of all electricians, including the Master Electrician and any Journeyman Electricians, licensed in Massachusetts, who will perform the electrical work required for this Contract. The Contractor is responsible to acquire all required permits and inspections from the Town of Clinton Inspection Department. Permit fees if required will be incidental to the work.

PUBLIC SAFETY AND CONVENIENCE (Supplementing Subsection 7.09)

Vehicular and pedestrian travel on the public way shall be maintained by the Contractor during construction and access to abutting properties shall always be provided. If so directed, temporary access walkways will be provided by the Contractor to insure safe passage under all weather conditions.

PROTECTION OF UNDERGROUND FACILITIES

The Contractor's attention is directed to the necessity of making his own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etc., will occur. The Contractor shall notify Mass. DIG SAFE and procure a DIG SAFE number for each location prior to disturbing the existing ground in any way.

DIG SAFE Call Center 1-888-344-7233

The Contractor shall notify Dig Safe 72 hours prior to start of any construction.

PROPERTY BOUNDS (Supplementing Subsection 7.13)

The Contractor shall exercise due care when working around all property bounds which are to remain. Should any damage to a bound result from the actions of the Contractor, the bound shall be accurately replaced and/or realigned by the Contractor as required by the Engineer. The Contractor shall employ a Land Survey register in Massachusetts to perform this work. No further compensation will be due the Contractor for the materials and labor required to re-establish a bound disturbed by the Contractor except as otherwise noted herein.

NOTICE TO OWNERS OF UTILITIES (Supplementing Subsection 7.13)

Written notice shall be given by the Contractor to all public service corporations or municipal and State officials owning or having charge of publicly or privately owned utilities of their intention to commence operations affecting such utilities at least two weeks in advance of the commencement of such operations. The Contractor shall, at the same time, file a copy of such notice with the Engineer. Before commencing work on service connections, the Contractor shall contact the serving utility to ensure that proper construction procedures are followed.

The following are the names and addresses of some of the agencies which may be affected, and must be notified. Completeness of this list is not guaranteed by the Town. The Contractor shall assure that all affected agencies are notified.

Electric:

National Grid (A)
548 Haydenville Road
Leeds, MA 01053
Attn: Sandra Annis
413-582-7424
Sandra.annis@nationalgrid.com

Cable:

Crown Castle
80 Central Street
Boxborough, MA 01719
Attn: Mark Bonanno
508-616-7818

Gas:

National Grid Gas
40 Sylvan Road
Waltham, MA 02451
Attn: Melissa Owens
781-907-2845
Melissa.owens@nationalgrid.com

Comcast

PO Box 6505, 5 Omni Way
Chelmsford, MA 01824
Attn: William Wasylak
774-409-3160
William_wasylak@comcast.com

Telephone:

Verizon
385 Myles Standish Blvd.
Taunton, MA 02780
Attn: Karen Mealey
774-409-3160
Karen.m.mealey@verizon.com

Fire Alarm:

Town of Clinton
Inspector of Wires
242 Church Street
Clinton, MA 01510
Attn: James Boody
978-365 4128

Water:

Clinton DPW Director
242 Church Street
Clinton, MA 01510
Attn: Chris McGown
978-365-4110

DPW:

Clinton DPW Director
242 Church Street
Clinton, MA 01510
Attn: Chris McGown
978-365-4110

Sewer:

Clinton DPW Director
242 Church Street
Clinton, MA 01510
Attn: Chris McGown
978-365-4110

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified, shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed.

The Contractor shall be required to furnish all labor, materials, and equipment necessary to protect underground structures and electrical vaults within the project site from construction debris, water penetration or any other damage. When underground structures or electrical vault roofs are excavated, the Contractor shall be responsible for maintaining security of these structures or electrical vaults against unauthorized access. The Contractor shall be responsible for leaving the structures and vaults in a state of water tightness equal to that existing at the commencement of the contract.

PROTECTION OF UTILITIES AND PROPERTY (Supplementing Subsection 7.13)

The Contractor, in constructing or installing facilities alongside or near sanitary sewers, storm drains, water or gas pipes, electric or telephone conduits, poles, railroad, sidewalks, walls or other structures, shall, at his expense, sustain them securely in place, cooperating with the officers and agents of the various utility companies and municipal departments which control them, so that the services of these structures shall be maintained.

He shall also be responsible for the repair or replacement, at his own expense, of any damage to such structures caused by his acts or neglect, and shall leave them in the same condition as they existed prior to the commencement of work. In case of damage to utilities, the Contractor shall promptly notify the owner and shall, if requested by the Engineer, furnish laborers to work temporarily under the owner's direction in providing access to the utility. Pipes or other structures damaged by the operation of the Contractor may be repaired by the Town of Clinton or by the utility company which suffers the loss. The cost of such repairs shall be borne by the Contractor, without compensation therefore.

If, as the work progresses, it is found that any of the utility structures are so placed as to render it impracticable, in the judgment of the Engineer, to do the work called for under this Contract, the Contractor shall protect and maintain the services in such utilities and structures and the Town will, as soon thereafter as it reasonably can, cause the position of the utilities to be changed or take such other action as it deems suitable and proper.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

The Contractor will cooperate fully with all utility companies private or public, and will notify all such companies at least twenty-four hours prior to excavating in the vicinity of any utility. It is understood that the Contractor has considered in his bid the existence of the various utilities and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained by him due to any interference by said utilities.

The Contractor shall pay the serving utility for their services rendered for the connection of underground service connection.

EXISTING SIDEWALK VAULTS

The Contractor is alerted that there are two known existing areaways/vaults beneath the sidewalk within the project limit. Only one of the areaways/vaults will have the sidewalk above the basement reconstructed. The second location will only have a small portion of the space beneath the sidewalk modified. Pay Items have been included in the project to address the required vault modification work, building protection and security. The two locations are as follows:

1. Santander Bank Building, Corner of High Street and Church Street – See Appendix D for Photographs
2. 119-127 High Street, The Peirce Building

The Contractor is advised that work associated with modifying the existing vaults is of a sensitive nature as this work has the potential to create opportunities for unauthorized access to the basements of private buildings. Therefore, no work that impacts any existing vault shall be performed without prior authorization from the Engineer. The Contractor shall make an evaluation of the existing vault to be modified prior to initiating any work that may impact the vaults, and shall develop a plan of work and schedule for approval by the Engineer. The Contractor shall coordinate the work with the Engineer and building owner or their designated representative, to minimize impacts to the operation and use of the building. Upon approval of the work plan and schedule, the Contractor shall give notice to the Engineer and building owner or their designated representative at least 72 hours in advance of beginning the work.

Though the vault modification details shown in the Plans are anticipated to address the required vault modifications, unforeseen and differing field conditions may be encountered. The Contractor is expected to work cooperatively with the Engineer when these instances are uncovered, as will the Engineer work cooperatively with the Contractor in developing additional or alternate modification details. The Contractor shall have no claims for delays associated with unforeseen or differing field conditions associated with the existing vaults and their required modifications. The Contractor can provide alternate solutions to the ones shown on the Plans, however all such alternates must be Stamped by a Massachusetts Registered Professional Engineer, and be approved by the Engineer.

DRAINAGE SYSTEM

The Contractor is responsible to maintain the drainage systems at all times in the areas under construction. Existing drainage shall not be taken out of service without prior written notice to the Town. The Contractor shall immediately notify nuisance ponding or flooding accruing as a result of, or during the work. All pipes and structures installed as part of this Contract shall be left in a clean and operable condition at the completion of the work.

All drainage castings in new pavement areas shall be installed at base or binder course grade, as directed by the Engineer, and reset to proposed finish surface grade prior to placement of the pavement surface course.

All existing pipes to be abandoned shall be plugged with brick masonry not less than 8" in thickness in conformance with the MassDOT Standard Specifications, Section 201.62.

No separate payment will be made for sawcutting required for the installation of drainage pipe trenches and structures, but all such costs shall be included in the unit prices for the various items.

No separate payment will be made for the maintenance of the existing drainage system or for plugging of pipes, but all costs in connection therewith shall be included in the unit prices bid for the various Contract items.

DRAINAGE STRUCTURES

Where new pipe is shown on the drawings to be connected into an existing drainage structure to remain, the existing structure shall be first cleaned to remove all mud, debris and other material.

The existing structure wall shall be carefully and neatly cut to provide the minimum size opening required for the insertion of the new pipe. The proposed pipe end shall be set or cut off flush with the inside face of the existing structure wall and the remaining space around the pipe completely filled with cement grout or approved by the Engineer for the full thickness of the structure wall.

Existing shaped inverts shall be reconstructed, as necessary to provide a smooth and uniform flow channel from the new pipe through the existing structure.

No separate payment will be made for the cost of connecting new pipes into existing structures, cleaning and necessary alterations of existing structures, but all such costs shall be taken as included in the unit prices bid for the various pipe items.

GAS GATES

It shall be the sole responsibility of the Contractor to coordinate with Gas Utility Company to have any and all gas gates adjusted to the proper grades or as directed by the Engineer. Unless otherwise directed by the Gas Utility Company, it shall be the responsibility of the Utility Company to adjust all gates. No measurement or payment will be made for any gas gates adjusted by the Contractor.

ENVIRONMENTAL CONTROLS

All construction equipment shall be fitted with suitable muffling devices so that the noise from construction operation shall be properly controlled. The Contractor shall control all dirt, dust, erosion and other related construction emissions from the project to the satisfaction of the Designated Agent.

DEWATERING

The Contractor's attention is directed to construction operations which may occur in the vicinity of wetland areas, ponds, brooks and/or surface or subsurface areas where surface water or groundwater may exist or accumulate. All dewatering and related work shall be conducted in such a manner as to prevent siltation or contamination of any adjacent resource area. Pumping discharge shall not be allowed to enter directly or indirectly into any wetland resource area without prior treatment (filter bags, silt sacks, settling basins, etc.) The Contractor shall include under each pertinent item all labor, materials and equipment necessary to dewater the affected areas for proper installation of the respective items. No additional compensation will be made for dewatering but shall be considered incidental and included in the price for each respective item.

STEEL PLATES IN CONSTRUCTION ZONES

At the end of each working day where trenches in areas of public travel are covered with steel plates, (Ref. subsection 7.09), each edge of such plates shall either be beveled or protected by a slope of 2 feet horizontally to 1 inch vertically. Any temporary patching material may be used to construct the ramps. The cost of the steel plates and necessary patching materials, and their maintenance and removal, will be considered incidental to the applicable Items of work involved with no separate payment.

MAINTENANCE OF EXISTING TREES

Caution shall be taken by the Contractor not to damage plants by burning, by pumping of water, by cutting live roots or branches, or by any other means. No plants to be saved shall be used for crane stay, guys or other fastenings. Vehicles shall not be parked where damage may result to trees to be saved. Construction materials shall not be stored beneath trees to be saved.

Existing shrubs, vines and groundcover to be saved that are damaged, as determined by the Engineer, shall be replaced with plants of equal size. All costs incurred shall be paid for by the Contractor at his own expense.

SAWCUTTING

Unless specifically stated otherwise, no separate compensation will be made for sawcutting. Sawcutting shall be considered as included in the payment made for the various items of this contract.

Sawcuts shall be made in the existing pavement at areas of new or reset curb, limits of full depth pavement construction, limits of box widening, cement concrete pavement, sidewalk construction, limits of work, and as directed by the Engineer. Payment for this work shall be included in the unit price under the applicable items without additional compensation.

The work under sawcutting shall conform to the relevant provision of Section 480 of the Standard Specifications and the following:

Sawcutting equipment shall be approved by the Engineer prior to commencing work.

All edges of excavations made in existing pavements, driveways, and sidewalks which will not be overlaid and which will be visible shall be squared by sawcutting with power-driven tools to provide a neat, clean edge for joining new pavement and sidewalks as shown on the Plans. Ragged, uneven edges shall not be accepted. Areas which have been broken or undetermined shall be edged neatly with a minimum disturbance to remaining pavement or sidewalks.

Sawcut surfaces shall be sprayed or painted with a uniform thin coat of RS-1 asphalt emulsion immediately before placement of bituminous concrete material against the surface.

CONCURRENT WORK BY OTHERS WITHIN PROJECT LIMITS

Concurrent work may be in progress in the project area by others, including but not limited to the Town and various utility companies. The Contractor is required to coordinate activities with all work by others within and adjacent to the project limits. No additional payments will be allowed for any disruption of work schedule caused by or required to coordinate work in this contract and work to be performed by others.

DISPOSAL OF SURPLUS EXCAVATE

Surplus materials obtained from any type of excavation, and not needed for further use as determined by the Engineer shall become the property of the Contractor and shall be properly disposed of outside the project limits and subject to the regulations and requirements of Federal, State and local authorities governing the disposal of such materials, at no additional compensation.

DISPOSAL OF SURPLUS MATERIALS

All existing and other materials not required or needed for use on the project, and not required to be removed and stacked, shall become the property of the Contractor and shall be removed from the site during the construction period and legally disposed of. No separate payment will be made for this work, but all costs in connection therewith shall be included in the prices bid for various contract items.

SURVEY CONTROL

Survey control data for project baselines shall be furnished to the Contractor. The Contractor, without additional compensation, shall maintain all such controls throughout the prosecution of the work and shall perform all required construction layout. Finished surfaces in all cases shall conform, as near as practical, in accordance with the grades and guidelines provided in the Contract Documents.

The Contractor shall employ qualified engineering personnel to insure adequate control and shall furnish and set stakes of the quality used by the Department for control staking. Rough stakes may be used to denote top and bottom of slopes, edge of pavement, gutter lines, etc.

The Contractor shall furnish and set, at his/her own expense, all stakes (such as batter boards, slope stakes, pins, offset stakes, etc.) required for the construction operations and he shall be solely responsible for the accuracy of the line and grade of all features of his/her work.

The Contractor shall be held responsible for the preservation of all stakes and marks. If any of such stakes or marks are disturbed or destroyed the cost of replacing them shall be at the Contractor's expense.

TEMPORARY PROTECTION FENCE

Contractor shall erect temporary protection fence as required to secure the work site for the purpose of public safety. The work shall include furnishing, installing, maintaining, removing, resetting, and final removal of fencing. The fence shall be used to close off the construction area from adjacent sidewalks and public ways, whose use conflicts with the construction activities.

All work to furnish, install, relocate and remove temporary fencing shall be considered incidental to and no separate payment will be made.

SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS

(Supplementing Subsections 850.21 and 850.61)

Safety controls for construction operations shall be done in accordance with the relevant provisions of Section 850 of the Standard Specifications, the latest edition of the Manual on uniform Traffic Control Devices, the Traffic Management Plan, and the following:

The providing of safety controls for construction operations shall be considered incidental to this Contract and the costs of control devices shall be considered as included in the various items of the contract items.

Positioning, adjusting and re-positioning of all devices such as traffic cones, concrete barrier, arrow boards, high-level warning devices, etc., not otherwise classified and paid for under the various items of this Contract, is considered incidental and no separate payment will be made.

All safety signing, temporary pavement markings, reflectorized and lighted drums, and all other safety controls used for construction operations shall conform to the NCHRP 350 and the MUTCD, Current Edition, for Streets and Highways including all amendments.

WORK SCHEDULE (Supplementing Subsection 8.02)

All work, including the setting up and taking down of work zone traffic control devices shall be done between the hours of 7:00 AM and 3:30 PM, Monday through Friday. No work shall be done on this contract on Saturdays, Sundays, holidays, or the day after a long weekend, without prior written approval from the Engineer.

Before starting any work on this contract, the Contractor shall submit a schedule of operations as provided in Subsection 8.02.

TRAFFIC MANAGEMENT

The Contractor shall follow the requirements for Traffic Management unless otherwise directed by the Engineer. Traffic Management Typical Details are included as part of the Contract documents.

The Contractor shall prepare and submit to the Engineer a proposed work schedule which complies with the plans and specifications. No work shall begin until the Engineer's approval of the schedule.

If significant traffic delays are experienced during working hours, the Contractor may be required to stop work.

It is the intent of these Special Provisions to minimize the construction impacts to the traveling public and abutting property owners by limiting the extent of roadway and sidewalk construction. The Engineer reserves the right to require the Contractor to alter the lengths of excavation and other operations.

The following conditions will be followed unless otherwise agreed to by the Engineer.

- A minimum of one 12-foot lane of traffic in each direction of travel must be maintained on all streets at all times, except where otherwise approved by the Engineer. Alternating traffic may be approved based on the submission and approval of a traffic plan from the Contractor.
- Work shall be undertaken so as to maintain existing turning movements unless otherwise approved in advance.
- On-street parking shall be maintained at all times except within an active work zone area and as approved by the Town of Clinton or their representative.
- Pedestrian access to all abutting properties shall be maintained except for very short periods of time. When it is necessary to restrict access to a property, the Engineer and the owner shall be informed at least 72 hours in advance.

CONSTRUCTION PHASING

As stated above, the Project is to be constructed in such a manner as to minimize overall disruption to the businesses and other activities that take place along High Street and Church Street. This shall be taken to mean the efficient management of day to day operations, as well as expeditious prosecution of the project and limit its duration to the extent possible. This section provides additional parameters for the Contractor to follow in the scheduling of construction operations. The Contractor is allowed to offer alternatives or modifications for discussion and consideration by the Town, as long as the guiding principles and parameters of this section and the contract documents are met.

Pre-Construction: Prior to beginning the work the Contractor shall place the required temporary control devices and warnings signs. The Contractor shall also submit to the Engineer a Schedule of Work that details the sequence of work for each phase of the work and the order in which each

phase will be completed. This schedule will be submitted every two weeks and any changes will be approved by the Engineer before the Contractor begins work.

Full Depth Reconstruction: The contractor shall limit their operations to a length of 300 feet of Full Depth Reconstruction or one block as approved by the Town of Clinton or their representative. The Town will consider the Contractor's proposals to execute on more than one non-contiguous section at a time if the Contractor can show they have a sufficient labor force and equipment. The Contractor will be allowed to use the parking lane adjacent to the sidewalk for each section of full depth roadway they are working on.

Sidewalk Reconstruction: Contractor shall limit his operation to a length of 300 feet of sidewalk reconstruction (excluding cobblestone banding and planting areas) or one block as approved by the Town of Clinton or their representative. The Town will consider the Contractor's proposals to execute on more than one non-contiguous sidewalk section at a time. The Contractor will be allowed to use the parking lane adjacent to the sidewalk for each section of sidewalk they are working on.

For each length of sidewalk under construction, it is expected that the Contractor will excavate the existing sidewalk, install and reset granite curbing, install light pole foundations and lighting and irrigation handholes and conduit, build sidewalk forms, place the concrete, and allow the concrete to cure. The Contractor shall always provide access to abutting properties using temporary ramps, as well as allow for safe pedestrian passage through or around each work zone.

Sidewalk Vault Modification: The Contractor would install the sidewalk vault as shown on the plans. The Contractor may propose to perform sidewalk vault modifications while performing work in another area at the same time. However, approval from the Engineer is required, along with the submission of a Traffic Plan to show how traffic would not be worsened by this additional activity.

Final Paving and Pavement Markings: The placement of the final paving surface shall not commence until after all the full depth roadway reconstruction is completed. After the adjustment of all of the utility castings, service gates and shutoffs, the Contractor shall maintain one direction of traffic along High Street and Church Street and detour the alternating direction of traffic for each roadway to allow for the equipment and trucks that are required to expedite the placement of the final asphalt pavement surface. The detouring of traffic along Union Street will not be allowed and one lane of alternating traffic must be maintained at all times during the paving operation. Final pavement markings shall not be placed until the required waiting period, as specified in MassDOT's Standard Specifications. The use of detours shall be approved by the Town of Clinton prior to implementation for this work and are required to be submitted 72 hours prior to implementation. The layout of all the markings shall be completed and approved by the Engineer, prior to the Contractor placing final markings.

Street Lights: Over the course of the project, the Contractor can install the proposed street lights as they are made available by the lighting distributor. If the Contractor proposes to install light poles while completing sidewalk work or roadway work in another Work Zone, then approval from the Engineer is required along with the submission of a Traffic Plan to show how traffic

would not be worsened by this additional activity. The Contractor shall be required to maintain the same or higher level of street lighting over the course of the project either by temporarily retaining some of the existing lights or activating portions of the new lighting systems. The Contractor shall be required to identify his method of achieving this before removing any existing lighting.

The Contractor shall maintain the existing street lighting until the new street lighting system is installed and operational. The contractor shall also be required to place full size panels in the sidewalk area to match the pattern of the new previously poured concrete sidewalk after the existing light poles, bases and foundations have been removed. Until the existing street lights are replaced and the new cement concrete sidewalk panels are placed the Contractor shall utilize Item 472 to provide a temporary walking surface in the area of the existing light poles.

Ancillary Items: Including the installation of cobblestone banding, street furniture (bike racks, benches, and trash receptacles), tree plantings, sign placements, landscaping items, and other streetscape amenities need to be approved by the Engineer. If the Contractor proposes to install any of these items while completing sidewalk work or roadway work in another Work Zone, then approval from the Engineer is required along with the submission of a Traffic Plan to show how traffic would not be worsened by this additional activity.

GUARANTEE

The Contractor shall guarantee all materials and equipment furnished and work performed for a period of one (1) year from the date of Substantial Completion. The Contractor warrants and guarantees for a period of one (1) year from the date of Substantial Completion that the completed is free from defects due to faulty materials or workmanship and the Contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage resulting from such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustment, or other work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

MONTHLY PRICE ADJUSTMENT HOT MIX ASPHALT (HMA)

The Price Adjustment will be based on the variance in price for the liquid asphalt component only from the Base Price to the Period Price. It shall not include transportation or other charges. This Price Adjustment will occur on a monthly basis.

The Base Price of liquid asphalt on a project is set per MassDOT's website at <http://www.mhd.state.ma.us/>. This price is determined by MassDOT using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market - New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. MassDOT will post this Period Price on this website within two (2) business days following their receipt of the relevant issue of the "Asphalt

Weekly Monitor". Poten and Partners has granted MassDOT the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor.

The Contract Price of the hot mix asphalt mixture will be paid under the respective item in the Contract. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.

The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M3.11.03.

The Price Adjustment will be a separate payment item. It will be determined by multiplying the number of tons of hot mix asphalt mixtures placed during each monthly period times the liquid asphalt content percentage times the variance in price between Base Price and Period Price of liquid asphalt.

This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments. No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is an approved extension of time.

MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE

This monthly fuel price adjustment is inserted in this contract because the national and worldwide energy situation has made the future cost of fuel unpredictable. This adjustment will provide for either additional compensation to the Contractor or repayment to the Commonwealth, depending on an increase or decrease in the average price of diesel fuel or gasoline.

This adjustment will be based on fuel usage factors for various items of work developed by the Highway Research Board in Circular 158, dated July 1974. These factors will be multiplied by the quantities of work done in each item during each monthly period and further multiplied by the variance in price from the Base Price to the Period Price.

The Base Price of Diesel Fuel and Gasoline will be the price as indicated in the MassDOT's web site (www.mhd.state.ma.us) for the month in which the contract was bid, which includes State Tax.

The Period Price will be the average of prices charged to the State, including State Tax for the bulk purchases made during each month.

This adjustment will be effected only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No adjustment will be paid for work done beyond the extended completion date.

Any adjustment (increase or decrease) to estimated quantities made to each item at the time of final payment will have the fuel price adjustment figured at the average period price for the entire term of the project for the difference of quantity.

The fuel price adjustment will apply only to the following items of work at the fuel factors shown:

ITEMS COVERED	FUEL FACTORS	
	Diesel	Gasoline
Excavation: and Borrow Work: Items 120, 120.1, 121, 123, 124, 125, 127, 129.3, 140, 140.1, 141, 142, 143, 144., 150, 150.1, 151 and 151.1 (Both Factors used)	0.29 Gallons / CY.	0.15 Gallons / CY
Surfacing Work: All Items containing Hot Mix Asphalt	2.90 Gallons / Ton	Does Not Apply

This Contract contains price adjustments hot mix asphalt, diesel fuel, and gasoline. For this project the base prices for liquid asphalt, diesel and gasoline will be the month of Notice to proceed as posted on MassDOT Highway Division's website at <http://www.massdot.state.ma.us/Highway>.

POLICE DETAILS

The Contractor is responsible for ordering and canceling Police Details in the event of schedule changes where work no longer requires the use of Details, or cancellations of work for any reason, including weather conditions per the Town of Clinton Police Department procedures.

Police Details shall be paid actual hours for which such services are rendered as required and according to the Town of Clinton's requirements. The Police Details shall be paid for directly by the Town of Clinton to the Police Department except as noted below.

If the Contractor fails to cancel any police detail not needed, by the required deadline as set forth by the Town of Clinton Police Department, the cost for such details shall be deducted from the total reimbursement to the Contractor, unless otherwise waived by the Town due to conditions which are beyond the Contractors control.

SECTION 02550**CONSTRUCTION SPECIFICATIONS****ITEM 102.2** **TREE TRIMMING** **LUMP SUM**

The trees to be trimmed and pruned are located along High Street, between Station 15+00 LT and Station 18+50 RT. These trees are located on private property, with branches and limbs that extend over the sidewalk and roadway. Coordination with the owners of the trees will be required.

Work to be done shall conform to the relevant provisions of Section 101 of the Standard Specifications. The work consists of limb pruning to prevent injury to the tree from construction equipment and activity, removing all dead, dying, broken and certain other limbs and branches as described hereinafter and the removal of all stubs of limbs and branches from all designated trees located within the project limits and the satisfactory disposal of all such removed debris.

All pruning and tree work shall be in conformance with the most current version of the American National Standards Institute (ANSI) Standard Z-133.1 and A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance.

All work under this item will be performed or supervised by the Massachusetts Certified Arborist.

Contractor shall be required to provide a crew, the crew shall be equipped with all necessary equipment needed to complete the work including, but not limited to, trucks, chippers, gas powered chain saws, hand saws, loppers, shears, pruners, branch trimmers, ladders, and tree-climbing equipment.. Fuel for equipment shall also be considered incidental to this item.

Submittals

Prior to start of work, the Contractor shall submit to the Engineer the name, certification number and resume of the Massachusetts Certified Arborist referenced herein. Cost for Certified Arborist for all activities pertaining to these Items shall be incidental to this item.

Description of Work

Tree: Shall be defined as having a diameter of 4 inches or over, measured at a point 3 feet above the average ground.

Limbs and branches: Shall be defined as wood having a diameter of ½ inch or over and wood that has a diameter of less than ½ inch shall be considered a twig.

A dying limb or branch: May have live growth at some point but shall be removed if found to be in an unhealthy condition.

While it is not the intent that every dead, dying and/or broken twig be removed from trees requiring

trimming, the tree worker will be required to remove all such twigs accessible in the areas of the tree in which he/she is working.

If directed by the Engineer, specific trees or parts thereof which are so located that damage may result from dropping shall be reduced by rope or cable lowering.

Tree shaping may be required on trees, where up-branching done under this contract has distorted the natural symmetry of the tree. Tree shaping shall consist of the removal of limbs and branches from other locations of the tree where removal is desirable to restore natural symmetry.

All sucker growth on all tree trunks within the limits of the contract shall be removed from the ground level to the beginning of the main branch system.

Any and all branches extending directly below a street luminaire as to limit the light reaching the street or walkway surfaces shall be removed and all branches shall be cut back to afford a minimum of 5 foot clearance on all sides of the luminaire. The walkway surface shall be considered as the area from the edge of the roadway surface to the edge of the walkway surface farthest from the roadway.

Recognized tree surgery practices direct that all limbs and branches which require removal and all stubs regardless of age be cut nearly flush, either to a union with the next larger sound limb, or branch, or nearly flush to the trunk of the tree.

By cutting nearly, but not quite, flush with the trunk, limb or branch, the "collar" is left at the top of the wound (in the crotch of the union). This will permit the callus growth to cover the wound in a shorter period.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

This work will be paid for at the contract unit price per lump sum, which price shall include full compensation for all labor, materials, equipment, apparatus, tools and incidentals necessary for the satisfactory completion of the work.

<u>ITEM 102.52</u>	<u>TEMPORARY TREE PROTECTION FENCE</u>	<u>FOOT</u>
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The work under this Item shall conform to the relevant provisions of Sections 644 and 771 of the Standard Specifications and the following:

Work under this item consists of furnishing, installing, maintaining, and removing temporary tree protection fence. The purpose of the fence is to prevent damage to tree roots, tree trunks, soil, and all other vegetation within a delineated area as listed here or directed by the Engineer. The temporary fence shall remain in place for the duration of the construction activities unless otherwise directed by the Engineer.

MATERIALS

Temporary Fence shall be such that it provides a minimum 48-inch tall barrier that remains for the duration of the construction period. Fence shall be plastic, orange safety fence, wooden snow fencing, or other approved material.

As directed by the Engineer, additional posts or attachments may be required if the fabric or fence sags, leans or otherwise shows signs of failing to create a sufficient barrier.

GENERAL

The fencing shall be located as close to the work zone limit and as far from the vegetation or tree trunk as possible to maximize the area to be protected. The fence shall run parallel and adjacent to the construction activity to create a barrier between the work zone and the root zone or designated limit of plants and soils to be protected.

The Contractor shall not engage in any construction activity within the protected area without the approval of the Engineer, including: operating, moving or storing equipment, storing materials, and shall not permit employees to access the area behind the temporary fence.

METHOD OF WORK

The fence shall be installed prior to any construction work or staging activities beginning. The fence shall be repositioned as necessary for optimum effectiveness. Repositioning shall be incidental to this item. The fence shall not be moved without prior approval by the Engineer. After construction activities are completed, or when directed by the Engineer, fencing, stakes, and other materials shall be removed and disposed off-site by the Contractor.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 102.52 – Temporary Tree Protection Fence shall be measured and paid per each, complete in place. This shall include all labor, materials, equipment, maintenance, final removal and disposal of the protective materials and all incidental costs required to complete the work.

No separate payment will be made for costs of remedial actions, including addition of more durable barriers, or arborist services, but all costs in connection with this Item shall be included in the Contract unit price per each.

<u>ITEM 120.1</u>	<u>UNCLASSIFIED EXCAVATION</u>	<u>CUBIC YARD</u>
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The work to be done under this Item shall consist of removing and disposing in accordance with the relevant provisions of Section 120, all materials required to complete the work, as shown on the plans and as directed, and all other excavation not provided elsewhere in the Contract.

Before starting excavation, the Contractor shall become familiar with vaults and other structures that have been identified in the project limits to make sure that excavations will not disturb or

damage such structures. The Contractor will coordinate construction activities with the owners of such structures prior to starting the excavation. Any damage done to these structures during the construction process will be the responsibility of the Contractor and will be repaired by the Contractor at his own expense. If the Owner so wishes, the Owner will repair the damage himself and bill the Contractor for his expenses.

The work under this Item shall include the satisfactory removal and disposal of all materials required to complete the project, except for those materials, which are included under other pay Items of this contract. Work shall include, but is not limited to, the removal of the following: buried foundations, parking meter posts, tree stumps, concrete slabs within the roadway or sidewalk areas, reinforced concrete slabs within the roadway or sidewalk areas, cobblestones, brick, metal tree grates, unsuitable materials, and any other materials if not specifically included for payment under another item.

Payment under this Item shall be at the Contract Unit Price per Cubic Yard, which price shall include all labor, materials, and equipment necessary to complete the excavation and disposal of unwanted or surplus material, not covered by other items of this contract. If needed, the lowering of existing structures required for the excavation operation shall be considered incidental to the work of this Item

ITEM 153. CONTROLLED DENSITY FILL - EXCAVATABLE CUBIC YARD

The work under this Item shall consist of furnishing and placing controlled density fill in areas where the required compaction is not practicable, in lighting conduit trenches for roadway crossings and other perpendicular trenches beneath cold plane and overlay areas, and as directed by the Engineer in accordance with the relevant provisions of Section 150 and the following:

The Contractor is made aware that any steel plates required for the completion of this Item are considered incidental.

Controlled density fill shall meet the requirements of Sections M4.08.0 of the Standard Specifications for controlled density fill - Type 2E.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 153. - Controlled Density Fill-Excavatable will be measured and paid for at the Contract unit price per Cubic Yard. This price shall be full compensation for providing and placement of the controlled density fill as well as the use of steel plates, and all labor, tools, materials, equipment, transportation, and incidental costs, required to complete the work. All costs in connection with the use of steel plates shall be considered incidental to the items of work involved.

ITEM 153.2	BACKFILL SIDEWALK VOID	LUMP SUM
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This work under this Item shall conform to the relevant provisions of Section 150, of the Standard Specifications and shall include the furnishing and installation of backfill material and the installation of a cement concrete wall within the basement area of 119-127 High Street, The Peirce Building.

The work shall include building a cement concrete block wall to enclose an area beneath the existing sidewalk that is approximately 6 feet square and 9 feet high. This area is accessible from an existing manhole cover at approximately STA 7+50 RT. The area is also accessible from a set of stairs located on the left side of the building that lead down to the basement area.

A cement concrete block wall, approximately 6-7 feet long, shall be built to enclose the area that will form the fourth side of the square space beneath the sidewalk and separate it from the other area of the basement. A concrete footing shall be placed beneath the cement concrete wall to provide a level foundation and anchor the bottom of the wall. The cement concrete block wall shall extend from the top of the concrete footing to the bottom of the existing slab at the sidewalk elevation. Upon completion of the wall the Contractor shall backfill the void with concrete. The concrete shall be placed in lifts of no more than 24 inches at once. Once the concrete has set the Contractor can place an additional 24 inches of concrete material until the entire cavity is filled. Either prior to filling the space or at completion the Contractor shall remove the existing cast iron frame and cover form the sidewalk area and patch the concrete to match the lines of the existing sidewalk. If possible, the Contractor shall remove an entire panel of the sidewalk and replace it to match the existing sidewalk panels.

The Contractor shall provide all materials, equipment, and labor to build the cement concrete wall and backfill the void including the footing/leveling pad for the block wall, any rebar or masonry ties required to connect the new block wall to the existing foundation, saw cutting to remove the frame and grate, disposal of the frame and grate, concrete for the sidewalk patching and any other items required for the completion of this Item.

Measurement and Payment under this Item shall be at the contract unit price per lump sum, complete in place for the complete filling of the void.

ENVIRONMENTAL

ITEM 180.01	HEALTH AND SAFETY PROGRAM	LUMP SUM
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The work shall consist of ensuring the health and safety of the Contractor's employees and subcontracting personnel, the Engineer, their representatives, the environment, and public welfare from any on-site chemical contamination present in air, soil, water and sediment.

The Contractor shall prepare and implement a site-specific Environmental Health and Safety Plan (EHASP) which has been approved and stamped by a Certified Industrial Hygienist (CIH) and includes the preparer's name and work experience. The EHASP shall include appropriate components required by OSHA Standard 29 CFR 1910.120(b) and the Massachusetts Contingency plan (MCP) 310 CMR 40.0018 and must comply with all applicable state and federal laws, regulations, standards and guidelines, and provide a degree of protection and training appropriate

for implementation on the project. The EHASP shall be a dynamic document with provision for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The EHASP shall be developed and implemented independently from the standard construction HASP required to work on all MassDOT construction projects.

Health and safety procedures provided by the Contractor shall comply with all the appropriate regulations that address employee working conditions, including but not limited to standards established by OSHA and National Institute for Occupational Safety and Health (NIOSH). Equipment used for the purpose of health and safety shall be approved by and meet pertinent standards and specifications of the appropriate regulatory agencies.

A copy of the most up-to-date version of the EHASP shall be maintained on-site at all times by the Contractor. The on-site copy shall contain the signature of the Engineer and each on-site employee of the MassDOT, Contractor, and Subcontractors involved with on-site activities. The employee's signature on the EHASP shall be deemed prima facie evidence that the employee has read and understands the plan. Updated copies of signature sheets shall be submitted to the Engineer.

The EHASP shall specify a Contractor Site Safety and Health Officer responsible for implementation of the EHASP and to oversee all construction activities, including handling, storage, sampling and transport, which require contact with or exposure to potentially hazardous materials.

The level of protection, required to ensure the health and safety of on-site personnel will be stipulated in the EHASP. The Site Safety and Health Officer shall implement the EHASP based on changing site and weather conditions, type of operation or activity, chemical compounds identified on-site, concentration of the chemicals, air monitoring data, physical state of the hazardous materials, potential duration of exposure to hazardous materials, dexterity required to perform work, decontamination procedures, necessary personnel and type of equipment to be utilized.

During implementation of the EHASP, a daily log shall be kept by the Site Safety and Health Officer and a copy shall be provided weekly to the Engineer. This log shall be used to record a description of the weather conditions, levels of personal protection being employed, screening data and any other information relevant to on-site environmental safety conditions. The Site Safety and Health Officer shall sign and date the daily log.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Preparation and implementation of the Environmental Health and Safety Program, including the monitoring, protection and storage of all contaminated materials, as well as subsequent modifications to the EHASP, will be measured and paid for at the unit price per lump sum.

The bid price shall include preparation and implementation as well as the cost for its enforcement by the Site Safety and Health Officer along with any necessary revisions and updates. The work of implementing the Environmental Health and Safety Program includes work involving, but not limited to, the monitoring, protection, and storage of all contaminated materials.

ITEM 180.02 PERSONAL PROTECTION LEVEL C UPGRADE HOUR

The work shall consist of providing appropriate personal protective equipment (PPE) for all personnel in an area either containing or suspected of containing a hazardous environment.

Contingencies for upgrading the level of protection for on-site workers will be identified in the EHASP and the Contractor shall have the capability to implement the personal protection upgrade in a timely manner. The protective equipment and its use shall be in compliance with the EHASP and all appropriate regulations and/or standards for employee working conditions.

Personal Protection Level C Upgrade will be measured and paid only upon upgrade to Level C and will be at the contract unit price, per hour, per worker, required in Level C personal protection. No payment will be made to the Contractor to provide Level D PPE.

ITEM 180.03 LICENSED SITE PROFESSIONAL SERVICES HOUR

Within limited areas of the project site, soils, sediments and/or groundwater may be contaminated. A Licensed Site Professional (LSP) shall be required to provide the services necessary to comply with the requirements of the MCP. These services may include sampling, analysis and characterization of potentially contaminated media, preparation of Immediate Response Action (IRA) Plans, Utility-Related Abatement Measure (URAM) and Release Abatement Measure (RAM) Plans, Imminent Hazard Evaluations, status reports, transmittal forms, release notification forms, risk assessments, completion statements, and related documents required pursuant to the Massachusetts Contingency Plan (MCP). LSP hours related to the characterization and disposal of contaminated soil and/or sediment are incidental to the disposal items. An estimate of LSP services to be provided shall be submitted to the Engineer for approval before any LSP activity begins.

The name and qualifications of the LSP and all environmental technicians to be assigned to the project shall be submitted to the Engineer for approval at least four weeks prior to initial site activities. The LSP shall have a current, valid license issued by the Massachusetts Board of Registration of Hazardous Waste Site Cleanup Professionals. The LSP shall have significant experience in the oversight of MCP activities at active construction sites. Qualification packages for the LSP and each technician shall include a resume, all recent work assignments with responsibilities identified (previous 5 years), and applicable training and certifications. A list of all Notices of Noncompliance, Notice of Audit Findings and Enforcement Orders issued by the DEP shall be submitted for all work assignments listed for the LSP and environmental technicians.

The LSP shall evaluate soil and/or sediment with discoloration, odor, and presence of petroleum liquid or sheening on the groundwater surface, or any abnormal gas or materials in the ground which are known or suspected to be oil or hazardous materials. Excavated soil and sediment which is suspected of petroleum contamination shall be field screened using the jar headspace procedures according to established DEP Guidance. All field screening equipment must be pre-approved by the Engineer. The LSP shall ensure proper on site calibration of all field screening instrumentation.

The Engineer shall be contacted immediately when observations or any field screening results verify contamination requiring further analysis, and/or enhanced management of suspect soil

and/or sediment. Any enhanced management of contaminated soil to ensure proper stockpiling and storage is incidental to the LSP Services item. The LSP shall adequately characterize subsurface conditions prior to backfill in areas where contaminated material has been excavated. The Engineer shall approve the locations of the testing sites prior to the sampling.

Contaminated soil, sediment and/or groundwater shall be handled in accordance with all applicable state and federal statutes, regulations and policies. The LSP shall adequately characterize contaminated media for comparison to the requirements of the MCP. The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations, and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations. The LSP shall maintain written records in a clear and concise format which tracks the excavation, stockpiling, analysis and reuse/disposal of all suspect contaminated soils, sediments and groundwater. These records shall be up-to-date and available to the Engineer on a bi-weekly basis. The LSP shall review and summarize the laboratory data from any analyses performed on contaminated media. A report shall be delivered to the Engineer outlining the material sampling methods, laboratory analysis results and proposed course of action. The laboratory report together with Chain of Custody forms for all analytical results shall be submitted to the Engineer within 14 days after completion of such analyses.

The LSP and Contractor shall be held responsible for the submission of all MCP-related documents to the Engineer at least 14 days in advance of any timeframe specified in the MCP and for the timely submission of data and tracking information as noted within this Item. All documents prepared under this Item must be reviewed and signed by the approved LSP. The Contractor and LSP shall be responsible for all fines, penalties and enforcement requirements imposed by applicable regulatory agencies for failure to meet regulatory and contract timeframes. No compensation will be provided for such fines, penalties and enforcement actions.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations, and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations.

If the Contractor causes a release of OHM, the Contractor shall be responsible for assessing and remediating the release in accordance with all pertinent State and Federal regulations, including securing the services of a LSP, at his own expense.

The LSP shall coordinate all activities involving both MassDOT and the DEP through the Engineer. Any notification of release shall be approved by the Department before submittal to the DEP, except if an imminent hazard condition exists as defined in 309 CMR 4.03(4)(b).

LABORATORY TESTING IN SUPPORT OF LSP SERVICES

Laboratory testing provides for analytical testing in support of LSP services related to maintaining MCP compliance, such as delineating the extent and type of contamination present. Sampling and testing for disposal purposes are not included.

In order to maintain compliance with the MCP or other regulatory requirements, the LSP shall request approval from the Engineer to obtain samples from various locations and depths within the project area and to perform laboratory analyses on those samples. The samples shall be delivered to a DEP-certified laboratory using proper chain-of-custody documentation for analyses which, depending upon site conditions and suspected and/or identified contaminants of concern, may include, but are not limited to, metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs) and volatile petroleum hydrocarbons (VPHs). Subsequent testing, depending upon initial results, may be required for Toxicity Characteristic Leaching Procedure (TCLP) analyses (EPA Method 1311) for metals.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

LSP Services for work under this item will be measured per person, per hour of service provided by LSP, Environmental Technicians and other approved personnel. Travel time shall not be included in the billable hours. LSP hours related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.

The quantity and type of laboratory tests must be approved by the Engineer beforehand. The contractor will be reimbursed upon satisfactory written evidence of payment. The contractor may be required to obtain cost estimates from three DEP certified laboratories for the Engineer to choose the service provider. Laboratory testing related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.

LSP Services will be paid at the Contractor bid price for each hour, or fraction thereof, spent to perform the work as described above. The bid price shall be a blended rate that includes the cost of the LSP, environmental technicians and other personnel, the performance of all work tasks and field screening, including required equipment, materials and instrumentation, and production of all documentation described above. All requests for payment must be accompanied by the following information: the names of the personnel associated with the work charged under LSP Services, dates and hours worked, work conducted, including, where appropriate, locations as identified on the construction plans, and a copy of the field diary for the dates submitted.

Laboratory Testing will be reimbursed upon receipt of paid invoices for testing approved by the Engineer.

DISPOSAL OF

ITEM 181.12 REGULATED SOIL - IN-STATE FACILITY TON

The work under these Items shall include the transportation and disposal of contaminated material excavated, or excavated and stockpiled. It shall also include the cost of any additional laboratory analyses required by a particular disposal facility beyond the standard disposal test set.

Excavation of existing subsurface materials may include the excavation of contaminated soils. The Contractor shall be responsible for the proper coordination of characterization, transport and disposal, recycling or reuse of contaminated soils. Disposal, recycling or reuse will be referred to as “disposal” for the purposes of this specification. However, regardless of the use of the term herein, there will be no compensation under these items for reuse within the project limits. The Contractor will be responsible for coordinating the activities necessary for characterization, transport and disposal of contaminated soils. Such coordination will include the Engineer and his/her designee overseeing management of contaminated materials. Contaminated soils must be disposed of in a manner appropriate for the soil classification as described below and in accordance with the applicable laws of local, state and federal authorities. The Contractor shall be responsible for identifying disposal facilities licensed to accept the class of contaminated soils to be managed and assure that the facility can accept the anticipated volume of soil contemplated by the project. The Contractor shall be responsible for hiring a Licensed Site Professional (LSP) and all ancillary professional services including laboratories as needed for this work. The Contractor will be responsible for obtaining all permits, approvals, manifests, waste profiles, Bills of Lading, etc. subject to the approval of the Engineer prior to the removal of the contaminated soil from the site. The Contractor and LSP shall prepare and submit to the Engineer for approval all documents required under the Massachusetts Contingency Plan (MCP) and related laws and environmental regulations to conduct characterization, transport, and disposal of contaminated materials.

CLASSES OF CONTAMINATED SOILS

The Contractor and its LSP shall determine if soil excavated or soil to be excavated is unregulated soil or contaminated soil as defined in this section. Such materials shall be given a designation for purposes of reuse or disposal based on the criteria of the MCP. Soils and sediments which are not suitable for reuse will be given a designation for purposes of off-site disposal based on the characterization data and disposal facility license requirements. The Classes of Contaminated Soils are defined as follows:

UNREGULATED SOIL consists of soil, fill and dredged material with measured levels of oil and hazardous material (OHM) contamination at concentrations below the applicable Reportable Concentrations (RCs) presented in the MCP. Unregulated soil consists of material which may be reused (or otherwise disposed) as fill within the Commonwealth of Massachusetts subject to the non-degradation criteria of the MCP (310 CMR 40.0032(3), in a restricted manner, such that they are sent to a location with equal or higher concentrations of similar contaminants. Disposal areas include licensed disposal facilities, approved industrial settings in areas which will be capped or covered with pavement or loamed and seeded, and for purposes of this project should be reused as fill within the project site construction corridor whenever possible. The material cannot be placed in residential and/or environmentally sensitive (e.g. wetlands) areas. Under no circumstances shall contaminated soils be placed in an uncontaminated or less contaminated area (including the area above the groundwater table if this area shows no sign of contamination).

The Contractor shall submit to MassDOT the proposed disposal location for unregulated soils for approval. If such a disposal location is not a licensed disposal facility, the Contractor shall submit to the Engineer analytical data to characterize the disposal area sufficiently to verify that the unregulated material generated within the MassDOT construction project limits is equal to or less

than the contaminant levels at the disposal site and meets the non-degradation requirements of the MCP. In addition, the Contractor shall provide written confirmation from the owner of the proposed disposal location that they have been provided with the analytical data for both the materials to be disposed as well as the disposal site characterization and that s/he agrees to accept this material. A Material Shipping Record or Bill of Lading, as appropriate, shall be used to track the off-site disposal of unregulated soil and a copy, signed by the disposal facility or property owner, shall be provided to the Engineer in order to document legal disposal of the unregulated material.

The cost of on-site disposal of unregulated soil within the project area will be considered incidental to the item of work to which it pertains.

REGULATED SOIL consists of materials containing measurable levels of OHM that are equal to or exceed the applicable Reportable Concentrations for the site as defined by the MCP, 310 CMR 40.0000. Regulated soil which meets the MCP reuse criteria of the applicable soil/groundwater category for this project area may be reused on site provided that it meets the appropriate geotechnical criteria established by the Engineer. Regulated Soil may be reused (as daily or intermediate cover or pre-cap contouring material) or disposed (as buried waste) at lined landfills within the Commonwealth of Massachusetts or at an unlined landfill that is approved by the Massachusetts Department of Environmental Protection (DEP) for accepting such material, in accordance with DEP Policy #COMM-97-001, or at a similar out-of-state facility. It should be noted that soils which exceed the levels and criteria for disposal at in-state landfills, as outlined in COMM-97-001, may be shipped to an in-state landfill, but require approval from the DEP Division of Solid Waste Management and receiving facility. An additional management alternative for this material is recycling into asphalt. Regulated Soils may also be recycled at a DEP approved recycling facility possessing a Class A recycling permit subject to acceptance by the facility and compliance with DEP Policy #BWSC-94-400. Regulated Soil removed from the site for disposal or treatment must be removed via an LSP approved Bill of Lading, Manifest or applicable material tracking form. This type of facility shall be approved/permitted by the State in which it operates to accept the class of contaminated soil in accordance with all applicable local, state and federal regulations.

HAZARDOUS WASTE consists of materials which must be disposed of at a facility permitted and operated in full compliance with Federal Regulation 40 CFR 260-265, Massachusetts Regulation 310 CMR 30.000, Toxic Substances Control Act (TSCA) regulations, or the equivalent regulations of other states, and all other applicable local, state, and federal regulations. All excavated materials classified as hazardous waste shall be disposed of at an out-of-state permitted facility. This facility shall be a RCRA hazardous waste or TSCA facility, or RCRA hazardous waste incinerator. This type of facility shall be approved/permitted by the State in which it operates to accept hazardous waste in accordance with all applicable local, state and federal regulations and shall be permitted to accept all contamination which may be present in the soil excavate. The Contractor shall ensure that, when needed, the facility can accept TSCA waste materials i.e. polychlorinated biphenyls (PCBs). Hazardous waste must be removed from the site for disposal or treatment via an LSP approved Manifest.

MONITORING/SAMPLING/TESTING REQUIREMENTS

The Contractor shall be responsible for monitoring, sampling and testing during and following excavation of contaminated soils to determine the specific class of contaminated material. Monitoring, sampling and testing frequency and techniques should be performed in accordance with Item 180.03 – LSP Services. Additional sampling and analysis may be necessary to meet the requirements of the disposal facility license. The cost of such additional sampling and analysis shall be included in the bid cost for the applicable disposal items. The Contractor shall obtain sufficient information to demonstrate that the contaminated soil meets the disposal criteria set by the receiving facility that will accept the material.

No excavated material will be permanently placed on-site or removed for off-site disposal until the results of chemical analyses have been received and the materials have been properly classified. The Contractor shall submit to the Engineer results of field and laboratory chemical analyses tests within seven days after their completion, accompanied by the classification of the material determined by the Contractor, and the intended disposition of the material. The Contractor shall submit to the Engineer for review all plans and documents relevant to LSP services, including but not limited to, all documents that must be submitted to the DEP.

WASTE TRACKING:

Copies of the fully executed Weight Slips/Bills of Lading/ Manifests/Material Shipping Records or other material tracking form received by the Contractor from each disposal facility and for each load disposed of at that facility, shall be submitted to Engineer and the Contractor's LSP within three days of receipt by the Contractor. The Contractor is responsible for preparing and submitting such documents for review and signature by the LSP or other appropriate person with signatory authority, three days in advance of transporting soil off-site. The Contractor shall furnish a form attached to each manifest or other material tracking form for all material removed off-site, certifying that the material was delivered to the site approved for the class of material. If the proposed disposition of the material is for reuse within the project construction corridor, the Contractor shall cooperate with MassDOT to obtain a suitable representative sample(s) of the material to establish its structural characteristics in order to meet the applicable structural requirements as fill for the project.

All material transported off-site shall be loaded by the Contractor into properly licensed and permitted vehicles and transported directly to the selected disposal or recycling facility and be accompanied by the applicable shipping paper. At a minimum, truck bodies must be structurally sound with sealed tail gates, and trucks shall be lined and loads covered with a liner, which shall be placed to form a continuous waterproof tarpaulin to protect the load from wind and rain.

DECONTAMINATION OF EQUIPMENT

Tools and equipment which are to be taken from and reused off site shall be decontaminated in accordance with applicable local, state and federal regulations. This requirement shall include, but not be limited to, all tools, heavy machinery and excavating and hauling equipment used during

excavation, stockpiling and handling of contaminated material. Decontamination of equipment is considered incidental to the applicable excavation item.

REGULATORY REQUIREMENTS

The Contractor shall be responsible for adhering to regulations, specifications and recognized standard practices related to contaminated material handling during excavation and disposal activities. MassDOT shall not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts DEP, the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing the disposal of contaminated soils.

All labor, materials, equipment and services necessary to make the work comply with such regulations shall be provided by the Contractor without additional cost to MassDOT. Whenever there is a conflict or overlap within the regulations, the most stringent provisions shall apply. The Contractor shall reimburse MassDOT for all costs it incurs, including penalties and/or for fines, as a result of the Contractor's failure to adhere to the regulations, specifications, recognized standard practices, etc., that relate to contaminated material handling, transportation and disposal.

SUBMITTALS

I. Summary of Sampling Results, Classification of Material and Proposed Disposal Option.

The following information, presented in tabular format, must be submitted to the Engineer for review and approval prior to any reuse on-site or disposal off-site. This requirement is on-going throughout the project duration. At least two weeks prior to the start of any excavation activity, the Contractor shall submit a tracking template to be used to present the information as stipulated below. Excavation will not begin until the format is acceptable to MassDOT.

Characterization Reports will be submitted for all soil, sediment, debris and groundwater characterized through the sampling and analysis program. Each report will include a site plan which identifies the sampling locations represented in the Report. The Construction Plan sheets may be used as a baseplan to record this information.

The Sampling Results will be presented in tabular format. Each sample will be identified by appropriate identification matching the sample identification shown on the Chain of Custody Record. The sample must also be identified by location (e.g. grid number or stockpile number). For each sample, the following information must be listed: the classification (unregulated, regulated, etc.), proposed disposal option for the stockpile or unit of material represented, and, all analytical results.

Each Characterization Report will include the laboratory analytical report and Chain of Custody Record for the samples included in the Report.

II. Stockpiling, Transport, and Disposal.

At least two weeks prior to the start of any excavation activity, the Contractor shall submit, in writing, the following for review and shall not begin excavation activity until the entire submittal is acceptable to MassDOT.

Excavation and Stockpiling Protocol:

Provide a written description of the management protocols for performing excavation and stockpiling and/or direct loading for transport, referencing the locations and methods of excavating and stockpiling excavated material.

Disposal and Recycling Facilities:

1. Provide the name, address, applicable licenses and approved waste profile for disposal and/or recycling location(s) where contaminated soil will be disposed. Present information substantiating the suitability of proposed sites to receive classifications of materials intended to be disposed there, including the ability of the facility to accept anticipated volumes of material.
2. Provide a summary of the history of compliance actions for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. Material should not be sent to facilities which are actively considered by the DEP, USEPA or other responsible agency to be in violation of federal, state or local hazardous waste or hazardous material regulations. MassDOT reserves the right to reject any facility on the basis of poor compliance history.

Transportation:

The name, address, applicable license and insurance certificates of the licensed hauler(s) and equipment and handling methods to be used in excavation, segregation, transport, disposal or recycling.

III. Material Tracking and Analytical Documentation for Reuse/Disposal.

The following documents are required for all excavation, reuse and disposal operations and shall be in the format described. At least two weeks prior to the start of any excavation or demolition activity, the Contractor shall submit the tracking templates required to present the information as stipulated below. Excavation or demolition will not begin until the format is acceptable to MassDOT.

All soils, sediments and demolition debris must be tracked from the point of excavation to stockpiling to onsite treatment/processing operations to off-site disposal or onsite reuse as applicable.

Demolition Debris:

Demolition debris must be tracked if the debris is stockpiled at a location other than the point of origin or if treatment or material processing is conducted. Identification of locations will be based on the station-offset of the location. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations/comments, quantity, and stockpile ID/processing operation location. For each unit of material tracked, the table will also track reuse of the material on-site, providing reuse date, location of reuse as defined by start and end station, width of reuse location by offset, the fill elevation range, quantity, and finish grade for said location. For demolition debris, which is not reused on site, the table will also track disposal of the material as defined by disposal date, quantity and disposal facility. The table must provide a reference to any analytical data generated for the material.

Soil/Sediment:

Soil excavation will be identified based on the station-offset of the excavation location limits. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations, quantity, and stockpile number/location. For each unit of material tracked, the table will also track reuse of the material on-site and disposal of the material off-site using the same categories identified for demolition debris above.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Disposal of contaminated soil shall be measured for payment by the Ton of actual and verified weight of contaminated materials removed and disposed of. The quantities will be determined only by weight slips issued by and signed by the disposal facility. The most cost-effective, legal disposal method shall be used. The work of the LSP for disposal under all of these items shall be incidental to the work with no additional compensation.

ITEM 181.12 Measurement for Disposal of Regulated Soil – In-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved in-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

<u>ITEM 201.</u>	<u>CATCH BASIN</u>	<u>EACH</u>
<u>ITEM 202.</u>	<u>MANHOLE</u>	<u>EACH</u>
<u>ITEM 204.</u>	<u>GUTTER INLET</u>	<u>EACH</u>

The work to be done under these Items shall conform to the relevant provisions of Section 200 of the Standard Specifications, and the following:

All catch basins shall be constructed as shown in MassDOT Standard Drawing E 201.4.0 with a 4-foot sump (deep sump).

Flat top sections shall be substituted for conical sections in areas of low cover. Flat top structures

shall have a minimum 28-day compressive strength of 4000 psi, reinforced for AASHTO H-20 loading with ASTM A 615 Grade 60 steel. No additional payment will be made for flat top structures.

Alternate eccentric cone sections or flat top sections with offset openings shall be used in areas where drainage structures are near existing underground utilities, as shown on the plans or as directed by the engineer. No additional payment will be made for eccentric cones or flat top structures with offset openings.

Frames shall be set using clay brick (3 courses allowed for) in a full mortar bed. Cement brick will not be allowed.

Concrete collars for new structures shall be High Early Strength cement concrete. The Contractor shall submit a mix design for High Early Strength concrete to the Engineer for approval. The dimensions of the concrete collars shall be as shown on MassDOT Construction Standard Drawing E 202.9.0. Concrete collars shall be incidental to the item of work to which they pertain.

The concrete collars shall be placed up to a height that is to the bottom of the surface course, thereby allowing for the placement of the surface course of Hot Mix Asphalt above the collar.

Gutter Inlet – shall be constructed as shown on the detail provided in the construction drawings and in accordance with applicable sections of Section 201 of the Standard Specifications.

Catch basins, and gutter inlets shall be placed on 6" crushed stone (M2.01.1) foundation as directed by the Engineer.

Connections made to existing pipes shall be included in the cost of the manholes. If existing pipes are to be abandoned, the end of the existing pipe shall be plugged as specified in Section 200.

BASIS OF PAYMENT

Payment for work under Items 201, 202 and 204. shall be at the contract unit price, per each regardless of depth, and shall include all excavation, shoring, bracing, bedding and backfilling, crushed stone foundation, inverts and other incidentals necessary to satisfactorily complete the work. Castings shall be paid for under Item 222.3.

ITEM 220.11	STRUCTURE ADJUSTED	EACH
ITEM 220.21	STRUCTURE REBUILT	FOOT
ITEM 220.51	STRUCTURE REMODELED	EACH

Work under these Items shall conform to the relevant provisions of Section 200 and shall be applicable to all types of municipal structures, including drainage, sanitary, where existing castings are to remain. These Items shall also apply to the Metromedia Manholes (MH) structures.

All rebuilt and remodeled structures shall be set to allow for 1 to 3 courses of brick between the

frame and the structure. Clay brick shall be used. The use of cement concrete brick will not be allowed. Castings shall be set to line and grade and provided with a concrete collar. Collars shall be constructed of 4,000 psi, ¾-inch, 610 cement concrete (high early). No additional compensation for concrete collars shall be allowed. Concrete collars shall be brought to a height that will allow placement of the full depth of the specified pavement wearing surface over the collar. Concrete collars shall be tacked coated with RS-1 Asphaltic Emulsion prior to the placement of pavement.

All dirt and debris caused by the Contractor shall be cleaned by the Contractor at his own expense.

Measurement and Payment under these Items shall be as follows:

Adjust new structures in full depth construction areas

If needed, the cost of raising new structures from a plated depth to the base course and raising the structures from the base course to finished grade shall be included in the cost of new structures and no additional payment shall be made therefore.

Adjust existing structures in areas of full depth pavement construction

The cost of lowering of structures shall be considered incidental to Item 120.1, Unclassified Excavation and no additional compensation shall be made. Raising the structures from a plated depth to base course or directly to finished grade shall be paid for under Item 220.51, Structure Remodeled. The Contractor shall also be compensated for up to one adjustment under Item 220.11, if a remodeled structure is initially only brought to base course level, as noted above.

Adjusting existing structures in mill and overlay areas

The contract allows for one adjustment for structures in mill/overlay areas paid for under Item 220.11 unless structure is a remodel. No additional payment will be made to adjust from base course to top course elevation, such as in the case of a winter shut down.

Adjustments for new castings shall be included in payment under the respective casting item. All existing castings to be reused shall be limited to one payment under Item 220.11. No additional payment will be made for adjustments required by construction phasing or winter shutdown.

Structures specified to be rebuilt shall be measured per vertical foot exclusive of the casting depth and paid under Item 220.21.

Removing and Stacking of existing castings shall be considered incidental to the appropriate drainage structure item, whether it be adjusted, change in type, remodeled, abandoned, or proposed. No additional compensation shall be for the removing and stacking of these castings.

All existing castings which are salvageable as determined by the Engineer shall be removed, stored, transported and reset to locations within the project as part of the work of these Items. Damaged or obsolete castings shall be replaced with new castings, as directed by the Engineer. New Frames and Covers or Grates shall be paid for under Item 222.31.

The Contractor shall properly dispose of the non-salvageable castings. No additional compensation will be made for disposal for these castings.

FRAME AND GRATE (OR COVER)

ITEM 222.3	MUNICIPAL STANDARD	EACH
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The work done under this Item shall conform to the relevant provisions of Section 201.

Drain and Sewer manhole covers, and frames shall conform to the Town of Clinton's standard, as manufactured by East Jordan Iron Works or approved equal. Sewer manhole covers shall have the word SEWER cast into the cover.

Catch basin frames and grates shall be the Town of Clinton's standard, as manufactured by East Jordan Iron Works or approved equal.

Significant lead time for castings may be required and should be noted.

Frames shall be set using clay brick. Cement concrete brick will not be allowed.

Payment under this Item shall include any adjustments to new castings required to meet finished grade. No additional payment will be made for new castings to be reset from binder to top course elevation, such as in the case of a winter shut down.

Payment for Removing and Stacking of existing castings shall be incidental to this Item including delivery of existing castings as determined by the Engineer to the Town's DPW yard.

Payment for frame and grate or cover, including transportation to location of installation, shall be at the Contract Unit Price bid per Each, complete in place.

6-INCH HIGH DENSITY POLYETHYLENE

ITEM 234.06	(HDPE) DRAIN PIPE	FOOT
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This work under this Item shall conform to the relevant provisions of Section 230 of the Standard Specifications and shall include the furnishing and installation of high-density polyethylene (HDPE) pipe for storm water drainage. This shall include the 6-inch HDPE Pipe from the existing retaining wall at 267 High Street (Mr. Z's Pizza), on the left side of the building adjacent to French Terrace, to the proposed catch basin at approximately STA 13+98 RT. The HDPE Pipe shall meet the requirements of Subsection M5.03.10 of the Standard Specifications. Prior to installation, pipe materials are to be submitted to the Engineer for approval.

The minimum slope of the installed pipe shall be one percent. The pipe shall be placed 30 inches deep, after transitioning from its existing discharge point at the wall. The work shall include the incidental adjustment of other utilities, as required. The trench shall be backfilled with suitable material or gravel borrow and compacted to meet the required compaction level. Any settlements or other defective work and material shall be promptly repaired or replaced at the Contractor's expense.

The Contractor shall provide all materials, equipment and labor to make the required connections to the existing pipe end, including any couplings to accommodate different pipe sizes, and the proposed catch basin.

Payment under this Item shall be at the Contract Unit Price per Foot, complete in place; including furnishing and installing pipe and couplings, fittings, trench excavation, regardless of depth; saw cutting, backfilling; shoring and bracing; crushed stone bedding, compaction, patching of the trench and the cleaning of related construction debris from the affected portions of the existing drainage system.

ITEM 238.10	10 INCH DUCTILE IRON PIPE	FOOT
ITEM 241.12	12 INCH REINFORCED CONCRETE PIPE	FOOT
ITEM 241.18	18 INCH REINFORCED CONCRETE PIPE	FOOT

The work under these items shall conform to the relevant provisions of Section 230 and 301 of the Standard Specifications and the following:

The work shall include the furnishing and installation of ductile iron and concrete drainpipe. Ductile iron drainpipe shall be utilized in areas where insufficient cover or utility obstructions warrant or as directed by the Engineer.

Ductile iron pipe for drainage shall conform to the material requirements of M5.05.3 of the Standard Specifications.

BASIS OF PAYMENT

Payment under this Item shall be at the Contract Unit Prices bid per Foot, complete in place; including all trench excavation, regardless of depth; saw cutting, backfilling; shoring and bracing; crushed stone bedding, compaction testing, the removal or abandonment of existing pipe, modifying inverts, and the maintenance of flow and the protection from and cleaning of related construction debris from the affected portions of the existing drainage system.

ITEM 376.1 HYDRANT – EXCLUDING COST OF HYDRANT EACH

Work under this Item shall conform to the relevant provisions of Section 300 of the Standard Specifications, and the following:

The work shall include the repositioning of existing hydrants as shown on the Plans. If the existing hydrant is not serviceable the Town of Clinton DPW shall provide the Contractor with a new hydrant. The Contractor shall review the need for a new hydrant prior to commencing the work and shall coordinate with the Town on when a new hydrant can be provided.

The work shall include all necessary materials, labor and transportation, as required, for a complete and in place hydrant, including all excavation (to any depth), shoring, water pipe and fittings, valves, gate box, other fittings as required, thrust blocks, connection to the existing watermain, backfill, compaction and testing. If new hydrant is required, the Contractor shall paint it based on the color code currently in use by the Town. Also required shall be the removal and capping of the existing 6 inch water pipe that connects the existing hydrant at its current location.

Measurement and Payment under this Item shall be at the Contract Unit Price per Each, which

price shall include all excavation, sawcutting, shoring, bracing, thrust blocks, bedding, gravel borrow backfill, pressure testing, chlorination, flushing, sampling, analysis and painting to the Town's color scheme. Payment is inclusive of installing the hydrant, as well as all fittings and the length of 6 inch ductile iron pipe required to install the hydrant complete in place and in working order.

The work of this Item shall also include the removal, transport and stack of removed but salvagable hydrants to the Town yard. Nonsalvageable hydrant as determined by the Engineer shall become the property of the Contractor and shall be properly disposed of off the site with no additional payment made.

ITEM 670.	FENCE REMOVED AND RESET	FOOT
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All work shall be done in conformance with the applicable sections of the Standard Specifications. Work shall include the removal, storing, protecting and resetting of fence, of any type, that is impacted by the work.

The work shall consist of removing existing fences and gates and resetting them in accordance in close conformity with the lines and grades shown on the plans or as directed by the Engineer.

Existing fence elements which, in the judgment of the Engineer, are unsuitable for reuse due to deterioration, or from damage caused by the Contractor's operation, shall be replaced with new materials of matching type and size. No separate payment will be made for the excavation, backfill and any necessary new materials and all costs shall be included in the unit bid price.

Compensation shall be at the Contract Unit Price bid per Foot, and shall include all labor, tools and materials and necessary incidentals to remove, protect and reset fence complete and in place and restore disturbed areas.

ITEM 697.1	SILT SACK	EACH
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The work under this Item shall conform to the relevant provisions of Section 670 of the Standard Specifications and consist of the furnishing, installing, maintaining, and removing silt sacks from all catch basins, drop inlets, and gutter inlets within the limit of work, or otherwise required.

Silt sacks shall be made of woven polypropylene geotextile fabric and sewn by a double needle machine, using a high strength nylon thread. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

Silt sacks shall be manufactured to fit the opening of the catch basins. Silt sacks shall be manufactured with two dump straps attached at the bottom of the silt sack. Silt sacks shall have a 1/4-inch nylon expansion restraint rope with 2-inch flat washers to keep the sides of the silt sacks away from the catch basin walls. Silt sacks shall be manufactured so that they have a certified average wide width strength per ASTM D-4884 standards of 165.0 lb/in for regular flow.

When the expansion restraint rope is covered with sediment, the silt sack shall be emptied, cleaned, and placed back into the catch basin.

All material removed from the silt sacks shall be properly handled and disposed of by the Contractor, and this must be done in accordance with all DEP regulations, policies, and guidance and at no additional cost to the Town. The responsibility for the proper handling and disposal of this material shall be solely the Contractor's.

Material removed from silt sacks shall be transported immediately to the place of disposal in machines or trucks that will not spill the material along the roadway. Any material falling on the roadway shall be removed at the Contractor's own expense.

Silt sack cleanings are classified as a solid waste by the Massachusetts Department of Environmental Protection (DEP) and may be disposed of at any landfill that is permitted by DEP to accept solid waste. Materials containing free-flowing liquids are prohibited from being accepted at landfills. The DEP encourages the beneficial reuse of this material whenever possible; however, use not in accordance with DEP determination, or disposal or use as fill in an unapproved location is not acceptable. It is anticipated that most, if not all, of the material will be landfilled, therefore the Contractor should be aware that many landfills may require testing and analysis of the material prior to accepting it for disposal at the facility.

The Contractor should be aware that if the test results indicate a hazardous waste that cannot be landfilled, the Contractor shall be responsible for all costs associated with adhering to special regulations regarding disposal of hazardous waste. The Contractor should take this into consideration in preparing the bid.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the filter fabric will become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and disposed of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Town.

When emptying the silt sack, the Contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractor's expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

All curb openings shall be blocked to prevent stormwater from bypassing the device.

Silt sacks will be measured and paid at the Contract Unit Price per Each, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work. No separate payment will be made for testing, inspections, maintenance, removal and

disposal of the sediment from the insert or for the final removal and disposal of the silt sack, but all costs in connection therewith shall be included in the Contract unit price.

ITEM 706.7	COBBLESTONE PAVING BAND	SQUARE FOOT
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This Item of work shall consist of furnishing and installing granite cobblestone banding as shown on the plans and specified herein.

QUALIFICATIONS

The Contractor is cautioned that the visual effect and appearance of the cobblestone banding is an important project element and that its installation must conform with the details and intent of the drawings and specifications. The installer of the cobblestone paving band must have five (5) years of experience of similar work. The Contractor will be required to submit the name of the installer they intend to use, along with verification of their experience and capability to the Engineer for approval.

The installer of the cobblestone paving band shall provide evidence of the successful completion of three (3) projects which utilized similar materials as specified and are of a similar scale and complexity of the work described. The installer shall also provide three (3) references with contact information, as well as corresponding photos of the completed installations. All references shall be from within the northeast region and shall reference projects completed within the last three years.

SUBMITTALS

Material Sample: The Contractor is be required to submit three full size cobblestone samples to the Engineer for approval before ordering. The samples shall demonstrate the final range of surface color, finish, and shape that will be provided throughout the project. Samples shall be full size and of a blue gray color.

Installer Qualifications: Submit above required installer qualifications and supporting photographic documentation.

MATERIALS

Natural Granite Cobblestone (Paver): Each cobblestone shall be approximately 4 inches x 4 inches x 8 inches nominal size, without sharp edges, and uniform in overall appearance without fissures, cracks, or flaws, as derived from natural sources. The color shall be a range of blue gray.

Bedding Sand: The sand for bedding shall be fine, clean, naturally occurring material with angular and sub-angular shaped particles, with a maximum size of 3/16 inch concrete sand conforming to the requirements of ASTM C 33, Specification for Concrete Aggregate. Sand rich in silica-based minerals.

Jointing Sand: The jointing sand shall be a polymer modified joint sand, pre-manufactured, bagged

and furnished with a warranty. The color of the joint sand shall be slate grey, as manufactured by Techniseal or approved equal.

METHOD OF CONSTRUCTION

The work for this Item must be performed in a careful, professional manner suitable for the historic character of the downtown area. The subject work is to be accomplished by skilled craftsmen with demonstrated experience in the installation of comparable specialty pavements in accordance with the details shown on the plans, these contract specifications and as directed by the Engineer.

Any irregularities in the line and grade of the sub-grade work shall not be corrected by varying the bedding depth and will require the adjustment of the sub-grade base material without additional compensation. The line and grade of the finished cobblestone banding surface shall conform to the elevations shown on the drawings.

The Contractor shall verify that all edging, curbing and other necessary edge restraints are in place prior to the placement of the cobblestone banding. The Contractor shall install filter fabric and bedding sand as shown on the drawings. The Contractor shall place the cobblestones onto the bedding sand and then seat each stone with a non-marring mallet to imbed the stone into the sand. The placement and install of adjacent stones shall be hand tight joints with a minimum width of 0.125 inches and a maximum width of 0.75 inches. Care shall be used to maintain similar joint spacing around cut shapes to be consistent with the paver field. Any cobblestone less than a third of a full-size cobblestone shall not be installed.

The Contractor shall install the cobblestones per the orientation, layout and pattern indicated on the plans, utilizing field cuts as required. The Contractor shall not exceed the specified joint widths. The Contractor shall set the stones in a manner such that the cobblestones are flush with the adjacent surfaces and the middle surfaces of the cobblestone are similar in height, achieving an even grade, and a uniform appearance, without depressions or tripping hazards. Areas of cresting, humps or ponding shall not be permitted and shall be reset at no additional cost. The cobblestone banding surfaces are intended to shed water and form an impervious surface. All joints shall be filled with polymeric jointing sand, designed for use with the joint widths specified and made of calibrated sand and polymer binders

The Contractor shall install polymeric jointing sand along the joints from the top of the bedding sand to the top of the cobblestone edges. After installing the polymeric jointing sand for the full depth of the cobblestone, potable water shall be sprayed over the joints to enable compaction and for the bonding action to take place. The contractor shall repeat the process, filling the joints multiple times as specified by the manufacturer's recommendations and until the joint sand is maintained flush with the edge of the cobblestones.

Any cobblestones installed that are damaged during compaction or are displaced horizontally or vertically shall be replaced or reset. All traffic, including vehicular, pedestrian, and the Contractor's employees, shall be prohibited from traveling on the surface for 72 hours after jointing is completed.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Measurement and payment for the Cobblestone Paving Band shall be at the Contract Unit Price per Square Foot for the surface area of Cobblestone Paving Band installed. The price shall include full compensation for furnishing and installing cobblestones, filter fabric, sand bedding, fine grading and compaction of the subgrade, jointing sand, edging restraints, and all of materials and labor necessary to satisfactorily finish the work to the full satisfaction of the Engineer.

ITEM 707.01	FLEXIBLE POROUS PAVEMENT	SQUARE FOOT
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This Item of work shall consist of furnishing and installing flexible porous pavement at newly planted trees at the locations shown on the plans and as specified herein. The system shall be permeable, polyurethane, UV stable, flexible, and have a hand troweled surface.

QUALIFICATIONS

Flexible porous pavement qualifications:

- The installer shall be currently certified by the manufacturer and have successfully installed a minimum of 5,000 square feet of flexible porous pavement within the northeast region within the last three years.
- The installer shall employ a minimum of two manufacturer-certified technicians who directly oversee or perform the installation.

SUBMITTALS

Submit resin product labels, data sheets and a copy of the manufacturer's installation guidelines and requirements.

Submit three (3) color samples of decorative aggregate for review. Colors shall be a range of grays and browns.

Submit four (4), 6-inch by 6-inch, samples of each decorative stone aggregate with resin product applied to illustrate color, texture and extremes of color range. Label each sample indicating the vendor name, aggregate name, size; and resin manufacturer and color.

Provide a list of successfully installed flexible porous paving projects, including the address, square footage, and photographs for each project.

MATERIALS

Base for the decorative aggregate shall be 3/4 inch crushed stone, clean and free of fines.

Decorative stone aggregate shall be clean, washed irregularly shaped, rounded-edge, glacier-worn pebbles; 3/8-inch average size; range 1/4-inch minimum to 1/2-inch maximum. Color range shall be as selected from the manufacturer's samples.

Binding agent shall be polyurethane resin or approved equal.

METHOD OF CONSTRUCTION

Determine subgrade permeability in accordance with ASTM D3385 before porous paving placement.

At Proposed Trees

Once the tree and planting material is installed, the installer will place a geo-textile filter fabric over the soil. This fabric must be water permeable and designed to prevent fine dirt particles from migrating into the ¾ inch stone.

Four (4)-inches of ¾ inch crushed stone shall be applied on top of the geo-textile filter fabric to a depth of 2 inches below the desired finished grade. Crushed stone shall be compacted to achieve a level and even finish.

Install a metal protective tree collar at a 6 inch radius to the tree flush with the desired finished grade. Fill void with loose decorative aggregate.

Mix aggregate, base and binder per manufacturer's instructions. Hand spread aggregate and resin mixture. Compact with hand trowel and smooth out any irregularities.

The top of the root-ball of the newly planted tree should be at a minimum of 4 inches to 6 inches below the desired finished grade of the flexible porous pavement.

Temperature of application is between 40°F and 85°F or per manufacturer's recommendations. Do not mix or apply product during wet weather.

Apply binder resin at the application rate necessary to provide proper coverage yet maintain permeability. After application and while binder is still wet, carefully remove errant aggregate and level and trowel any minor irregularities in the finish surface. Cordon off treated area to protect it from people and animals. Allow 24 hours to cure. Clean and sweep adjacent surfaces.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Flexible porous pavement shall paid for at the Contract Unit Price per Square Foot installed including excavation, fine grading, base aggregate, decorative aggregate in polyurethane, crushed stone, geo-textile fabric, tree ring, labor, materials, and equipment required for the satisfactory completion of the work.

ITEM 707.11	STEEL BENCH	EACH
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This Item of work shall consist of furnishing and installing benches at the locations shown on the plans and as specified herein and approved by the Engineer.

SUBMITTALS

Contractor shall submit to the Engineer for approval product data describing the bench dimensions, mounting, accessories, materials, color finish, warranty, and installation procedures.

MATERIALS

The benches shall be approximately 32 inches high, 6 feet in length with a seating height of 17 inches. The benches shall have cast metal ends and continuous tension and support rods between each end. The benches shall be configured with a continuous 'slat-style' back and seat arranged with gaps between the slats. The slats shall be steel bars 1.5 inches wide with approximately 1.5 inch between each slat. The bench shall be similar to Model 58-60 as produced by DuMor, Inc., Mifflintown, PA, or equal. Color shall be Black. The benches shall be surface mounted.

Anchor bolts shall be vandal resistant, stainless steel expansion bolts as specified or provided by the manufacturer. The expansion shield shall be of the correct size to receive the required bolt. Mounting shall be per the manufacturer's directions.

METHOD OF MEASUREMENT AND PAYMENT

Measurement and payment for Bench shall be at the Contract Unit Price per Each, which price shall constitute full compensation for all labor and materials, including bench, mounting hardware, equipment and all other incidentals required to finish the work, complete and accepted by the Engineer.

If the concrete sidewalk beneath the Bench is required to be thicker than the sidewalk, as specified by the manufacturer, then the concrete base beneath the Bench shall be paid under 701.1, Cement Concrete Sidewalk at Driveways.

ITEM 707.113	GRANITE BLOCK A	EACH
ITEM 707.114	GRANITE BLOCK B	EACH

This Item of work shall consist of furnishing and installing Granite Blocks for the use as benches at the locations shown on the plans and as specified herein.

GENERAL

The Contractor is cautioned that the visual effect and appearance of the granite block colors, edges and surfaces are an important element of the project.

SUBMITTALS**Material Samples:**

The Contractor will be required to submit samples of granite to the Engineer for approval before ordering.

MATERIAL

The granite blocks to be furnished shall be a fine to medium grained granite, gray to light tan to blue gray in color, with limited veining, and dark mica flecking. Granites such as Barre Grey, or Mason are representative examples of granite that may meet this requirement. The granite blocks shall have a Rock-faced finish on all four sides, and the top shall be split-faced with a coarse sandblasted finish, resulting in an upper surface with less variation than the faces, without sharp edges or protrusions, and suitable for seating.

INSTALLATION

The installer shall utilize nylon lifting straps or slings and shall load and carefully transport the granite blocks to the location at the project site for installation. The granite blocks shall be handled carefully without marring the surfaces. Prior to arrival on site the granite blocks shall be washed, using care not to damage the surfaces.

The granite blocks shall be set to a minimum depth of 4 inches below finish grade. This depth may need to be increased to maintain a level top surface elevation. The vertical edges of the granite blocks shall closely abut adjacent hardscape elements and minimizing voids to the greatest extent possible. The benches shall be set plumb and true to line. The Contractor shall install blocks on a ¾-inch crushed stone bed as shown on the plans.

MEASUREMENT AND PAYMENT

Measurement and Payment for Granite Block A and Granite Block B shall be paid for at the Contract Unit Price per Each, which shall include full compensation for furnishing and installing the granite blocks, excavation, crushed stone bedding, compaction, transportation, lifting and setting into place, and any and all labor and materials required to complete installation to the satisfaction of the Engineer.

ITEM 707.21 TRASH RECEPTACLE REMOVED AND RESET EACH

This Item of work shall consist of removing the existing trash receptacles within the project limits, transporting them to the Town of Clinton Department of Public Works Yard prior to the commencement of construction, and then transporting and reinstalling them after the finished sidewalk is installed.

The receptacles shall be transported to the Town of Clinton Department of Public Works Yard at 99 Woodlawn Street, Clinton, MA 01510. The contractor shall coordinate with Chris McGown, at (978) 365-4110, 48 hours prior to a proposed delivery of materials. All materials shall be neatly stacked, transported, and restacked within the area designated by the Town.

CONSTRUCTION METHODS

When reinstalled, the receptacles shall be bolted to the cement concrete sidewalk in a similar manner as currently installed. If new mounting hardware (anchor kit) is required, it shall meet and be installed per the manufacturer's recommendations.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

This Item shall be paid for at the Contract Unit Price per Each, which price shall constitute full compensation for removing, transporting and re-installing trash receptacles complete and in place, including mounting hardware, equipment and all labor and incidental materials required to complete the installation to the satisfaction of the Engineer.

<u>ITEM 707.9</u>	<u>BICYCLE HITCH</u>	<u>EACH</u>
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This Item of work shall consist of installing bicycle hitches at the locations designated by the Engineer.

MATERIALS

The Bike Hitch shall consist vertical round HDG steel posts each welded directly to base plates. and on opposing sides of the vertical post. All components shall be Schedule 40 pipe. All components of the Bike Hitch shall be powder coated – black.

The Bike Hitch shall be model “Swerve” as manufactured by American Bicycle Security Company, Ventura, CA 1-800-245-3723; “Swerve” as manufactured by DERO, Minneapolis, MN 1-888-337-6729; or “Phoenix” as manufactured by Madrax, Waunakee, WI 1-800-448-7931, or approved equal.

CONSTRUCTION METHODS

The Bike Hitch shall be surface mounted. The Bike Hitch shall have a 0.25-inch thick base plate welded to the vertical posts. The base plate shall have holes for mounting with tamper resistant nuts. The Bike Hitch shall be installed plumb and in conformance with the manufacturer's recommendations.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

This Item shall be measured and paid for at the Contract Unit Price per Each, which price shall include full compensation for furnishing and installing bike hoops, mounting hardware, equipment and all labor and incidental materials required to complete the installation to the satisfaction of the Engineer.

If the concrete sidewalk beneath the Bike Hitch is required to be thicker than the sidewalk, as specified by the manufacturer, then the concrete base beneath the Bike Hitch shall be paid under 701.1, Cement Concrete Sidewalk at Driveways.

ITEM 762.	HANGING PLANT IRRIGATION	EACH
ITEM 762.1	IRRIGATION SYSTEM	LS
ITEM 762.12	IRRIGATION SYSTEM CONTROL BOX	LS

PART 1 – GENERAL CONDITIONS

1.1 WORK SUMMARY

- A. Provide all materials, labor, equipment, technical service, and testing to complete construction of automatic irrigation system for hanging planters on light poles within street sidewalk as defined in the Specifications and Construction Drawings.
- B. Work items include:
 1. Submitting qualifications and all product cut sheets as specified below
 2. Procurement of all applicable licenses, permits, and fees
 3. Coordination of all utilities and verification of existing and proposed site conditions
 4. Connection of electrical power supply to irrigation control system and irrigation control system to earth ground coordinating with electrical contractors
 5. Connection of domestic water supply to irrigation system coordinating with civil contractors
 6. Coordination with Electrical Contractor to provide mockup of proposed light pole irrigation system.
 7. Adherence to all safety protocols in place during construction, including but not limited to:
 - a. Occupational Safety and Health Administration (OSHA)
 - b. Local, State, and Federal Guidelines on Preventing Infection Disease Spread
 - c. Local and State Plumbing Boards
 - d. Local and State Health Departments
 8. Demonstration of completed irrigation installation and all irrigation components operating within specified Sequence of Operation as determined by specified Commissioning Procedure prior to request for final payment (see Part 3 – Execution).
- C. After date of approval of completion by Owner's Representative, guarantee entire system with parts and labor for one (1) year, including first-year winterization and spring startup.

1.2 QUALIFICATIONS

- A. Qualified irrigation system installers must have at least five (5) years of experience with labor required and products specified herein, including:
 1. Two-Wire Controller and Valve Installation
 2. Streetscape Irrigation with Polymer Concrete Valve Boxes
 3. Internet and Weather-Based Irrigation Controllers with Web Applications and Notifications (acquire manufacturer certification of training)
 4. Fused High Density Polyethylene (HDPE) Pipe and Valve Installation
 5. Commercial, Large Municipal, and/or Institutional Irrigation Systems
- B. Attest qualifications for three (3) recent projects of similar scope and size in previous five (5) years on company letterhead for approval by Owner's Representative.

1.3 UTILITIES

A. Water Service Points of Connection

1. New Domestic Municipal Water tap in street shall be brought to Irrigation Cabinet in sidewalk.
 - a. Equipment requirements within Irrigation Cabinet
 - 1) Town of Clinton-approved Water Meter
 - 2) Reduced Pressure Zone Backflow Preventer
 - 3) Type K Copper Pipe
 - 4) Angle Meter Valves
 - 5) Check Valve on Riser from Street Tap
 - 6) Drain Valve
 - 7) Winterization Port
 - 8) 0 – 200 psi Pressure Gauge Prior to Water Meter (Feed from Street Tap)
 - 9) 0 – 200 psi Pressure Gauge After Flow Sensor (Start of Irrigation Mainline)
 - 10) Irrigation Flow Sensor
 - 11) Irrigation Normally Open (NO) Master Valve
 - 12) Irrigation Normally Closed (NC) Master Valve with Pressure Regulation
 - 13) Irrigation 4-20 mA Pressure Sensor
 - b. Flow and pressure requirements downstream of Irrigation Cabinet
 - 1) Flow: Maximum 10 gallons per minute
 - 2) Pressure (Dynamic): Minimum 60 pounds

B. Electrical Power Source to Irrigation Controller within Irrigation Cabinet

1. New electrical circuits to be provided by Electrical Contractor to Irrigation Cabinet
 - a. Power Requirements for Irrigation Controller
 - 1) 120-Volt, 1-Phase, 60-Hz, 20-Amp
2. Coordinate all conduit for power conductors, valve wire, and bare copper ground wire in and out of Irrigation Cabinet through Concrete Pad.
3. Coordinate with Electrical Contractor to Ground Controllers and Decoders to Earth

C. Communications to Irrigation Controller within Irrigation Cabinet

1. Provide Internal Cellular Card for Irrigation Controller and Cellular Antenna mounted to and protected by Irrigation Cabinet.
2. Provide Irrigation Controller Manufacturer Web-Based Application Account with Login and Password Information.
3. Demonstrate Communication Ability through Web-Enabled Device during specified Commissioning.

1.4 RELATED REQUIREMENTS

- #### A. Coordinate with other project trades and refer to overall project Construction Document

Specifications and Drawings, including, but not limited to:

1. General Requirements
2. Existing Conditions
3. Concrete
4. Plumbing
5. Electrical
6. Earthwork
7. Exterior Improvements
8. Utilities
9. Construction Drawings

1.5 APPLICABLE STANDARDS AND CODES

- A. At minimum, comply with following standards and codes:
 1. American Society for Testing and Materials (ASTM)
 2. National Standard Plumbing Code (NSPC)
 3. National Electric Code (NEC)
 4. National Sanitary Foundation (NSF)
 5. Underwriters Laboratories, Inc. (UL)
 6. Occupational Safety and Health Administration (OSHA)
- B. Comply with applicable laws, standards, and regulations of local governing authority. All local laws more stringent than those referenced above shall take precedent.

1.6 SUBMITTALS

- A. Submit all materials listed below prior to beginning construction:
 1. Literature: Manufacturer's product data sheets, specifications and installation instructions for materials listed in this Specification (Part 2 – Products).
 - a. Product submittals shall be concise (no extraneous pages or sections, submit cut sheets, do not submit entire user's manual)
 - b. Clearly mark cut sheet to show submitted product model, type, size, etc.
 - c. Substitute Product Submittal
 - 1) Provide specified product submittals for "an approved equal" to Owner's Representative for approval.
 - 2) Alternate products are acceptable when products of equal or better quality (at no additional cost to Owner) and performance are submitted and approved by Owner's Representative.
 - 3) Substitute Product Submittals constitute representation that:
 - a) Substitute products have been thoroughly investigated and have been determined to be equal or superior in all respects to that specified.
 - b) Substitute products shall provide same warranties as specified products.
 - c) Substitute products are compatible with interfacing items.

- d) Assume responsibility of and guarantee system performance as a result of product substitution, including making all subsequent changes to meet design specifications.
 - d. Work shall not commence until all products specified are submitted and approved by written notification by Owner's Representative.
 - e. All product installed shall be new, without defects, and of quality and performance as specified.
 - 2. Schedule: Submit Schedule of all products to be furnished hereunder, indicating manufacturer, size, and model.
 - a. Ensure that all of types/styles of products and installation equipment specified herein can be furnished by manufacturer submitted.
 - b. Note on submittals those products that have manufacturer lead times of over three (3) weeks.
 - c. Provide all spare irrigation parts as noted (see Spare Irrigation Parts).
 - d. Prior to submitting schedule, confirm current site conditions are as provided in Construction Drawings.
- 1.7 DELIVERY, STORAGE AND HANDLING
- A. Do not deliver materials to Site, until all specified submittals have been submitted to, and approved by, Owner's Representative.
 - B. Coordinate with Owner's Representative for temporary storage and staging areas.
 - C. Protect materials from damage from construction traffic, weather, corrosion, and other causes while stored on-site. Minimize on-site storage as possible.
 - D. Store and handle all products and materials in compliance with manufacturer instructions and recommendations.
- 1.8 GUARANTEE AND REPLACEMENT
- A. Guarantee entire irrigation system, parts and labor, for one (1) year from official written date of acceptance by Owner's Representative after specified Commissioning.
 - B. Provide written warranty showing date of completion and period of warranty with date of first winterization and spring startup prior to request for final payment.
 - C. System malfunctions occurring during guarantee period due to defective materials, poor workmanship, improper system setting adjustment, user error, and/or communication failures shall be corrected to satisfaction of Owner's Representative at no additional cost to Owner.
 - 1. Repair all defects within 10 days of notification from Owner or Owner's Representative.
 - 2. Repair defects with approved products.
 - D. Manufacturer warranties shall be provided for all products and materials where such warranties are offered in published product data. Copies of manufacturer warranties are to be included in Operations & Maintenance Manual (See Operation and Maintenance).

PART 2 - PRODUCTS

2.1 AUTOMATIC IRRIGATION CONTROLLER

- A. Controller

1. Size: Approximately 16 inches (tall) x 12 inches (wide) x 6 inches (deep)
2. Construction: Electronic with 120-Volt Input and 24-28 Volt Output, Stainless Steel Bracket-Mounted Enclosure within Irrigation Cabinet.
3. Standards: UL-Listed
4. Required Features: Manual and Automatic Control, Water Budgeting, Cycle-Soak, Sensor Input Terminals, Internal Transformer, Flow Monitoring Capability, Lightning Protection, Remote Control, Two-Wire System.
5. Mounting: Provide Uni-Strut (or Equal) Bracketing to Secured Wall-Mounted Enclosure
6. Manufacturer/Model: Baseline BL-3200; or Approved Equal

B. External Devices

1. Flow Sensor
 - a. Manufacturer/Model: Baseline PFS100; or Approved Equal
 - b. Flow Range 0.1 – 10 gpm
2. Remote Internet Access
 - a. Manufacturer/Model: Baseline BaseManager Plus Web Application (for use with Computer, tablet, or smartphone); or Approved Equal
 - b. Cellular Data Card and Antenna to be provided
 - c. Weather-Based Watering (WBW)
3. Decoders
 - a. Manufacturer/Model: BL-5201, BL-5202, and BL-5204; or Approved Equal
4. Lightning Arrestor (with Bare Copper Wire back to Grounding Rod)
 - a. Manufacturer/Model: Baseline BL-LA01
5. 4-20 mA Pressure Sensor
 - a. Manufacturer/Model: Baseline BL-5406 Pressure Bicoder Kit

2.2 WIRE

A. Two-Wire (From Controller to Decoders)

1. Size: 14/2 AWG Minimum
2. Construction: Dual Strand Solid Copper Conductors with PVC Insulation and Poly Jacket.
3. Ratings: UL-Listed, NEC (Class II Circuit), Direct Burial UF/TWU, up to 600-Volt Potential
4. Standards: ASTM B-3, ASTM B-8
5. Markings: Manufacturer, Rating, Size, and Type
6. Manufacturer/Model: Coleman Cable #51452; Paige P7072D, P7296D, P7350D, and P7354D; Regency 14/2 and 12/2 Maxi Cable; Hunter Decoder Jacketed; Service Wire Company DEC12/2BE and DEC 14/2BE; or Approved Equal.

B. Conventional Wire (From Decoders to Electric Zone Valves)

1. Size: 14AWG Minimum
2. Construction: Single Strand Solid Copper Conductor with PVC Insulation

3. Ratings: UL-Listed, NEC (Class II Circuit), Direct Burial UF/TWU, up to 600-Volt Potential
 4. Standards: ASTM B-3, ASTM B-8
 5. Markings: Manufacturer, Rating, Size, and Type
 6. Manufacturer/Model: Paige Electric Model P7001D; Service Wire Company UF14, UF12; Regency Wire & Cable 14AWG, 12AWG; or Approved Equal.
- C. Bare Copper Wire (to Grounding)
1. Size: 6AWG Minimum
 2. Construction: Single Strand Solid Bare Copper Conductor
 3. Manufacturer/Model: Paige Electric; or Approved Equal.
- D. Wire Splices
1. Type: Direct Burial Wire Splice Kit (All Components Intact)
 2. Construction: Lockable Plastic Tube, Pre-Filled with Insulation Gel
 3. Ratings: UL-Listed, NEC, Direct Burial and Submersion, up to 600-Volt Potential
 4. Manufacturer/Model: 3M DBY-6; Rain Bird DB Series; or Approved Equal.
- E. Wire Conduit
1. Size: ½-Inch Minimum
 2. Construction: PVC, Solvent Weld
 3. Ratings: Schedule 40
 4. Fittings: Long Sweep Elbows
 5. Manufacturer: Cresline; Certainteed, JM Eagle; or Approved Equal.
- 2.3 PIPE AND FITTINGS
- A. Mainline Pipe
1. Size: 1-Inch Maximum
 2. Construction: High Density Polyethylene (HDPE) PE4710 IPS
 3. Ratings: DR11 (200 psi)
 4. Standards: ASTM D3350, ASTM F412
 5. Markings: Manufacturer, Nominal Size, Class or Schedule, Pressure, Extrusion Date
 6. Manufacturer and Models (or Approved Equals):
 - a. ISCO
 - b. JM Eagle
- B. Fittings
1. Size: 1-Inch Maximum
 2. Construction: Molded HDPE PE4710 IPS
 3. Ratings: DR11 (200 psi)
 4. Standards: ASTM D-3350
 5. Connection Methods:
 - a. Butt Fusion (Mainline Pipe Ends)

- b. Electrofusion (Lateral and Branch Pipe)
 - 6. Manufacturer and Models (or Approved Equals):
 - a. ISCO
 - b. Harrington Corporation (HARCO)
 - c. EJ Prescott
 - C. Irrigation Nipples and Fittings
 - 1. Size: ¾-Inch and 1-Inch
 - 2. Construction
 - a. For Valves TOE Nipples: Schedule 80 PVC
 - b. Other Fittings: Schedule 40 PVC
 - 3. Markings: NSF Designation, Size, Class or Schedule
 - 4. Manufacturer: Lasco; Spears; Dura; or Approved Equal
- 2.3 ELECTRIC IRRIGATION VALVES
 - A. Drip Zone Valve (Kit)
 - 1. Size: ¾-Inch
 - 2. Construction: Plastic Diaphragm with Reinforced Nylon or Fiberglass Body
 - 3. Ratings: 200 psi, Minimum Flow of 0.5 gpm
 - 4. Features: Manual Bleed Screw, Flow Control, Pressure Regulation (to 25 psi), and Stainless Steel Screen Filtration to 100 micron (150 mesh).
 - 5. Manufacturer/Model: Hunter ACZ-075-25; or Approved Equal
 - B. Master Valve (Inside Cabinet)
 - 1. Size: 1-Inch
 - 2. Quantity: Two (2)
 - a. Normally Open (NO), Allowing for Quick Coupling Valve Use and Flow Sensing
 - b. Normally Closed (NC), Overall Failsafe for Power Failure
 - 3. Construction: Cast Iron and Bronze
 - 4. Ratings: Pressure = 200 psi, Minimum Flow Rate = 0.01 gpm
 - 5. Features: Manual Bleed Screw, Flow Control, Adjustable Pressure Reduction from 5 – 125 psi.
 - 6. Manufacturer/Model:
 - a. Griswold Controls Model 2230H (1-Inch Straight, Pressure Reducing Normally Closed Valve); or Approved Equal
 - b. Griswold Controls Model 2160H (1-Inch Straight Normally Open Valve); or Approved Equal
- 2.4 ISOLATION VALVES
 - A. Small Mainline Isolation Valve
 - 1. Size: 1-Inch
 - 2. Construction: HDPE PE4710

3. Ratings: 200 psi
4. Features: Butt Fusion and Electrofusion Installation to Mainline
5. Manufacturer/Model: AquaFuse 1-Inch IPS Ball Valve 4710 Full Port; or Approved Equal

2.5 QUICK COUPLING VALVES

- A. Small Mainline Quick Coupling Valve
 1. Size: 1-Inch, Normally Closed
 2. Construction: Brass, Spring-Loaded Valve Seat, Key Engaged
 3. Ratings: 125 psi
 4. Features: 1-Inch NPT Inlet, 2-Piece Body, Anti-Rotation Stabilization Wings. Yellow Rubber Locking Vinyl Cover
 5. Manufacturer/Model: Hunter HQ-44LRC-R; or Approved Equal.

2.6 POLYMER CONCRETE VALVE BOXES

- A. General
 1. Size
 - a. 12-Inch x 12-Inch for
 - 1) Drip Zone Valve Kit
 - 2) Quick Coupling Valve
 - 3) HPDE Ball Valve
 - 4) Grounding Rod
 2. Construction: Polymer Concrete
 3. Ratings: ASTM C-857 A-16
 4. Lid Color: Painted to match surrounding surface
 5. Features: Bolt-Down Covers (Provide Bolts and Install), Brick Supported
 6. Manufacturer/Model: Oldcastle H-Series, Quazite, or Approved Equal

2.7 DRIP IRRIGATION

- A. Multi-Outlet Emission Device
 1. Construction: Plastic
 2. Fittings: ½-inch NPT inlet, 8 Emitter Ports for Barbed Emitters
 3. Features: Built-In Filter, Threaded Top for
 4. Manufacturers: Rain Bird, Model Xeri-Bird 8, or Approved Equal
- B. Distribution Tubing
 1. Size: ¼-inch (fed through Light Pole Conduit to Hanging Planters)
 2. Construction: UV-Resistant Polyethylene Resin
 3. Fittings: For use with Barbed Emitters
 4. Features: Pressure Regulator Option (Rain Bird PRS-050-30), Built-In Filter
 5. Manufacturers: Rain Bird, Model XQ, or Approved Equal
- C. Drip Emitter inside Multi-Outlet Emission Device (Point Source)
 1. Size: 12, 18, and 24 gal/hour (to be coordinated with Potted Plants on Light Poles)

2. Construction: UV-Resistant Plastic
3. Features: Self-Piercing, Pressure Compensating, Color Coded to Identify Flow Rate
4. Manufacturer/Model: Rain Bird PC Modules, or Approved Equal

2.8 EARTH MATERIALS

- A. Stone in Valve Boxes
 1. Type: ¾-Inch minimum Crushed Stone
- B. Clean Sand for Pipe Bedding
 1. Gradation: (passing by weight)
 - a. No. 4 Sieve= 80% Minimum
 - b. No. 200 Sieve = 5% Maximum
- C. Concrete Pad for Irrigation Cabinet
 1. Ratings: 4,000 psi 28-day Compressive Strength
 2. Standards: ASTM C-33, ASTM C-94, ASTM-C150

2.9 SPARE IRRIGATION PARTS

- A. Wrenches, Keys, and Tools for Servicing and Adjusting Irrigation (2)
- B. Quick Coupler Valve Keys (2)
- C. Drip Zone Valve Kits (2)
- D. Assorted Drip Valves and Fittings

2.10 BACKFLOW PREVENTER

- A. Size: ¾-inch
- B. Construction: Bronze with Quarter Turn Ball Valve with Strainer
- C. Ratings: 175 psi Maximum
- D. Manufacturer: Watts, Model 009M2-QT-S, or approved equal

2.11 WATER METER

- A. Size: 5/8-inch
- B. Construction: Bronze
- C. Features: Automatic Meter Reading Option, Threaded Inlet and Outlet
- D. Manufacturer: Provided and/or to be approved by Town of Clinton

2.12 IRRIGATION CABINET

- A. Size: 60 inches long x 24 inches wide x 39 inches high.
- B. Construction: Marine-Grade Aluminum (Painted Hunter Green at Factory, to be approved by Owner)
- C. Features: Lockable with Padlock
- D. Ratings: Insulated
- E. Mounting: Secure Enclosure to Concrete Pad on Sidewalk
- F. Manufacturer: VIT Strongbox, Model PE-60AL, or approved equal

2.13 COPPER PIPE

- A. Size: 5/8 to 1-inch

- B. Construction: Type K Copper
 - C. Standards: ASTM B-88
 - D. Fittings: Wrought Copper, Silver Solder Joint (per ASTM B-828), Non-Corrosive Flux
- 2.14 ANGLED BALL METER VALVES
- A. Size: 5/8-Inch to 1-Inch
 - B. Construction: Brass (85-5-5-5), Factory Installed Handles
 - C. Fittings: FPT
 - D. Manufacturer: Mueller, or Approved Equal
- 2.15 PRESSURE GAUGES
- A. Size: 2-Inch Dial Face with 0 – 200 psi Reading
 - B. Construction: Brass
 - C. Fittings: FPT (Shrader Valve)
 - D. Manufacturer: Watts, or Approved Equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Competent superintendents and assistants shall be on-site at all times during product delivery, installation, testing, system adjustments, and internet-based communications.
 - 1. Field communication by Owner or Owner's Representative to superintendent shall be binding and recorded through written communication.
 - 2. Oral communication shall be recorded as written record for project at time of communication. Oral communication alone is not binding without acknowledgment by Owner or Owner's Representative.
- B. System features shall be laid out as indicated on Drawings, making minor adjustments for variations in planting arrangements or field conditions. Major changes shall be reviewed with Owner's Representative before acceptance.
 - 1. Irrigation lines shown on Construction Drawings are diagrammatic only.
 - 2. Location of irrigation equipment is contingent upon and subject to integration with all other underground utilities, tree roots, and hardscape design elements.

3.2 EXAMINATION

- A. Review and verify project conditions are as indicated on Construction Drawings prior to starting work, including but not limited to:
 - 1. Utilities
 - 2. Site Grades, Slopes, and Dimensions
 - 3. Landscaping and Hardscape Features
 - 4. Structures
 - 5. Available Sleeves and Conduits
- B. Report any irregularities of site conditions to Owner's Representative prior to beginning work.
- C. Beginning of installation connotes acceptance of existing project conditions.

3.3 PROJECT COORDINATION

- A. Hold pre-construction meeting to outline construction methods and concerns of installation with all components specified and shown on Drawings. Pre-construction meeting shall outline project timeline, design intent
- B. As part of this project, work with civil and electrical contractors to provide mockup of light pole irrigation system with sleeves and distribution tubing through base and pole prior to construction.
- C. Coordinate with Owner's Representative to expeditiously install system.
- D. Provide written notifications (electronic is acceptable) to Owner's Representative prior to work commencement, weekly for progress report, for any proposed changes to system design, and upon installation completion ready for commissioning review.
- E. All questions of design intent, proposed design changes, field notifications, and product substitution after installation commences shall be in writing to Owner's Representative as a Request for Information (RFI).
- F. Utility Coordination
 - 1. Maintain 6-inch minimum clearance between irrigation lines and any utility line.
 - 2. Install all underground irrigation utilities with warning tape at least 3 inches above crowns of pipe and conduit.
 - 3. Exercise care when working near existing utilities. Coordinate closely with civil and electrical contractors at all times.

3.4 SITE PROTECTION

- A. Protect landscaping, paving, structures, walls, footings, etc. from damage caused during work. Damage to work of another trade shall be reported at once.
- B. Replace or repair any damage with same product or material, to satisfaction of Owner's Representative at no additional cost to Owner per Guarantee.

3.5 EXCAVATION AND BACKFILLING

- A. Pipe Trench
 - 1. Excavate trenches straight and true, minimizing site disturbance as possible.
 - 2. Final trench bottom shall be undisturbed soil and shall be free of rocks and debris larger than 1 inch or with sharp edges.
 - 3. If trench base is unsuitable for laying pipe, over excavate 2 inches below pipe invert, and place Clean Sand or Stone.
- B. Clean Backfill
 - 1. Material: Clean Sand (See Earth Materials)
 - a. Clean backfill must be free of foreign material, debris, frozen material and rocks larger than 1-inch.
 - 2. Carefully place clean backfill a minimum depth of 10-inches over pipe and wire, tamp in place.
 - 3. Carefully place material around pipe and wire, tamp in place.
- C. Trench Backfill
 - 1. Material: Sidewalk Subgrade as specified by others

- a. Clean backfill must be free of foreign material, debris, frozen material, and rocks larger than 1-inch.
2. Place and compact in maximum 6-inch lifts to dry density equal to undisturbed soil. Compaction by truck or equipment tires is prohibited.
3. Avoid backfilling in hot weather.
4. Match adjacent subsurface grades without hills or depressions. Repair settling (as required by Guarantee).

3.6 PIPE INSTALLATION

A. HDPE Pipe and Valve Wire Conduit Installation

1. Sections of high-density polyethylene pipe should be joined using butt-fusion into continuous lengths on-site, above ground, before installation.
 - a. Butt Fusion:
 - 1) The joining method of continuous HDPE pipe shall be by butt fusion and shall be performed in strict accordance with the pipe manufacturer's recommendations.
 - 2) The butt fusion joining will produce a joint with a weld strength equal to or greater than the tensile strength of the pipe itself.
 - 3) Butt fusion equipment must be capable of meeting all requirements by the manufacturer; including, but not limited to:
 - a) Interfacial Fusion Pressure: 75 psi
 - b) Temperature requirements: 400-450 degrees Fahrenheit
 - c) Data Logging – including: temperature, pressure, and graphic representation of fusion cycle. (Include in Operations and Manual – See Section Below)
 - b. Sidewall Fusion
 - 1) Sidewall fusions for connections to outlet piping shall be performed in accordance with the pipe manufacturer's recommendations.
 - 2) The heating irons used for sidewall fusion shall have an inside diameter equal to the outside diameter of the HDPE pipe being fused. The size of the heating iron shall be ¼ inch larger than the size of the outlet branch being used.
 - c. Mechanical Joints
 - 1) Use mechanical joints where butt fusion cannot be used.
 - 2) Mechanical Joints will use either
 - a) HDPE flange adapter with ductile iron back-up ring, or
 - b) HDPE Mechanical Joint adapter with ductile iron back-up ring
 - d. Socket fusion, hot gas fusion, threading, solvents, and/or epoxies are not acceptable methods to join HDPE pipe or fittings.
- B. Pipe and Wire Conduit shall run together at same invert (See Wire Installation).
- C. Pipe Cover (unpaved surfaces, if planting depth allows)
 1. HDPE Mainline and Wire Conduit = 15 inches

D. Pipe Protection

1. Prevent foreign material from entering pipe during installation.
2. Open ends of pipe shall be closed by watertight plug or seal when not in use.
3. Securely store pipe when not scheduled for installation.
4. Pipe shall not be installed during rainstorms or when temperature is below 40 °F.
 - a. Pipe installed at temperatures below 40 °F shall be removed and replaced at no cost to owner.

3.7 DRIP ZONE VALVE INSTALLATION

- A. Install electric zone valves on level crushed stone base or drainage aggregate generally where shown on Construction Drawings. Do not pour stone around valves that are already installed.
- B. Install all Schedule 80 PVC threaded nipples with Teflon tape, isolation valves, and/or union couplings in and out of drip zone valve kits as shown on details on Construction Drawings.
- C. Set valves plumb with adjusting handle and all bolts, screws, and wiring accessible through valve box opening.
- D. Install at sufficient depth to provide 2 inches of cover from top of valve to finish grade.
- E. Install specified polymer concrete valve box over all electric zone valves.
- F. Ensure polymer concrete valve box lid is flush with final proposed grade in sidewalk.
- G. Adjust zone valve operation after installation using flow control device on valve.

3.8 QUICK COUPLING VALVE INSTALLATION

- A. Install quick coupling valves where indicated on Construction Drawings; generally, at ends of mainline branches.
- B. Mount mainline quick coupling valves on 1-inch diameter electrofusion risers.
- C. Ensure polymer concrete valve box lid is flush with final proposed grade in sidewalk.

3.9 WIRE INSTALLATION

- A. Install wiring per local codes for less than 30-Volt service.
- B. Install valve two-wire through HDPE conduit parallel to mainline and feed through to polymer concrete valve boxes.
- C. Maintain sufficient slack for expansion, contraction and servicing. Do not install wiring tightly.
 1. Provide and install additional 12 inches slack for conventional wire from decoder to valve.
 2. Provide 30 inches slack between decoders for two-wire.
 3. Provide sufficient length of wire in valve boxes to allow valve solenoid, splice, decoder wire, and all connections to be brought above grade for servicing.
 4. Coil slack for neatness in valve box.
- D. Provide waterproof splices at all in-ground wire connections using approved splice kits. All splices shall be made in valve boxes and recorded on Record Drawings.
- E. Provide complete wiring diagram showing wire routing for connections between controller and valves as specified in Record Documents.

- F. Securely store wire when not scheduled for installation.

3.10 GROUND INSTALLATION

A. Decoder Grounding

1. Provide lightning surge arrestors as required by Manufacturer and shown on Drawings.
2. Grounding shall be provided for per manufacturer's instructions. Where no minimum grounding requirements are specified, provide grounding every 6 decoders or 500 feet maximum.
3. Lightning/Surge Arrestor
 - a. With waterproof splices, connect lightning arrestor red wire to site red wire and lightning arrestor black wire to site black wire. Decoder, lightning arrestor, and site two-wire may be connected in same waterproof splice as per manufacturer.
 - b. With waterproof splice, connect lightning arrestor ground green wire to 6AWG solid bare copper wire and run to grounding rod.
 - c. Place wired lightning arrestor neatly inside valve box.

B. Controller Grounding

1. Connect bare copper 6WG wire to controller ground lug and connect to earth grounding rod within Irrigation Cabinet.
2. Do not create grounding loop with field decoders (different ground locations outside of influence spheres).

3.11 DECODER INSTALLATION

A. Wiring

1. With waterproof splices, connect decoder red wire to site red wire and decoder black wire to site black wire.
2. With waterproof splices, connect decoder valve leads to electric zone valve solenoid leads.
3. Place wired decoder neatly inside valve box.
4. Connect with irrigation controller and run diagnostic decoder search to link.

B. Provide grounding for decoders per manufacturer's instructions. Refer to Ground Installation section.

1. With waterproof splice, connect lightning arrestor ground green wire to 8AWG solid bare copper wire back to building earth ground.
2. Place wired lightning arrestor neatly inside valve box.

3.12 DRIP IRRIGATION INSTALLATION

A. Integral Drip Emitter Tubing (Planter Beds)

1. Install in areas as shown on Contract Drawings by hand under mulch with average depth of 2 inches. Maximum 3-inch burial.
2. Install all tubing below surface, no tubing visible.
3. Install tubing on high side of plants to ensure vertical and lateral water distribution.
4. Install emitter tubing 4-inches from all planter bed edges, curbs, walls, and hardscape features.

5. Level Ground Installation
 - a. Install emitter tubing in rows spaced at design spacing for level ground.
 6. Slope Installation
 - a. Install emitter tubing in rows spaced at design spacing for top 2/3 of slope.
 - b. Install emitter tubing in rows spaced at 1.5 times design spacing for bottom 1/3 of slope.
 - c. Orient rows parallel to slope.
 7. For every 4 feet of elevation difference within a drip zone, install check valve on supply header.
 8. Provide pressure regulation as designed.
 9. Secure emitter tubing with stakes every 5 feet to prevent shifting from compaction, slopes, and general operation.
 10. Install Automatic Flush Valves on farthest ends of PVC exhaust headers and at lowest elevation; generally, where shown on Contract Drawings.
- D. Electric Zone Valves (Drip Zone Kits)
1. Electric Zone Valves shall be installed as shown on details within appropriately sized valve boxes (see below).
 2. Wire and program valves to Irrigation Controller.
- E. Green Roof Irrigation
1. In general, follow Drip Irrigation for Planter Beds as described above.
 2. For sedum and extensive green roof materials, provide additional micro spray irrigation for temporary establishment. Remove micro spray irrigation at the conclusion of guarantee period.
 3. Install irrigation by hand.
 4. Backfill with approved green roof planting medium (lightweight soils, see Related Documents for project).
- 3.13 AUTOMATIC IRRIGATION CONTROLLER INSTALLATION
- A. Controller
1. Install controller at location shown on Construction Drawings inside Irrigation Cabinet on concrete pad.
 2. Wire valves and external sensors into controller through conduits and set proper programming.
 - a. Program irrigation controller for watering each drip zone valve kit, such as:
 - 1) Sun vs. Shade
 - 2) Plant Species
 3. Using licensed electrical, wire controller to 120-Volt, 20-Amp electrical supply provided by Electrical Contractor.
 4. Provide keys to Owner after final walkthrough.
- B. Flow Sensor
1. Install Flow Sensor where shown on Construction Drawings.
 2. Provide straight pipe for Flow Sensor to reduce turbulence
 - a. Upstream: 10 inches (10 times pipe diameter)

- b. Downstream: 5 inches (5 times pipe diameter)
 - 3. Wire Flow Sensor to Automatic Irrigation Controller as specified with waterproof connectors. Do not use splices between Controller and Flow Sensor.
 - 4. Run Irrigation Controller “Learned Flow” Feature with Flow Sensor to record normal operation of irrigation system.
 - C. Grounding
 - 1. Ground irrigation controller to grounding rod in Irrigation Cabinet.
 - D. Master Valves
 - 1. Install two (2) master valves to control and protect irrigation system from leaks, breaks, and power failure.
 - 2. Normally Open (NO) Master Valve
 - a. Set NO Master Valve to close within 3 minutes of flows outside of normal range of operation (20% of Learned Flow).
 - 3. Normally Closed (NC) Master Valve
 - a. Create separate irrigation program to energize (open) NC Master Valve at all times.
 - b. Use Pressure Reducing feature of NC Master Valve to prevent over pressurization of irrigation system incoming from street main.
 - c. Upon power failure to irrigation controller and system, NC Master Valve will de-energize and shut water off to irrigation system.
- 3.14 VALVE BOX INSTALLATION
- A. Furnish and install valve boxes as per valve schedule above for each valve.
 - B. Finish elevation of all boxes shall be at grade.
- 3.15 TESTING AND ADJUSTMENTS
- A. Include all testing and adjustments in submitted bid price.
 - B. System Flushing
 - 1. Open drip zone valve kits, quick coupling valves, and ball valves to flush out irrigation system under full head of water before installing internals, drip tubing, and emitters.
 - 2. Flush entire irrigation system after complete installation.
 - 3. Clogged emitters shall be remedied after completion of irrigation system.
 - C. Testing
 - 1. Test all pipe and valves for leaks at operating pressure. Repair all leaks and retest until leaks are remedied. Submit pressure test results of HDPE pipe for review prior to final commissioning.
 - 2. Perform drip irrigation tests with Owner’s Representative present. Operate electric zone valves for two (2) minutes minimum during test. Readjust irrigation to attain proper watering. Replace any equipment that does not meet specified standards.
 - 3. After testing, clean all equipment of debris during installation.
 - D. Throughout guarantee period, adjust irrigation and ensure proper watering of hanging planters.

3.16 RECORD DOCUMENTS

A. Record (As-Built) Drawings

1. Maintain and update Record Drawings with red-line markings as project progresses, including locations of:
 - a. Irrigation Method (drip, flow rate, etc.)
 - b. Valve Boxes and descriptions (valve type, zone numbers, splice, etc.)
 - c. All equipment installed with distinct symbols.
 - d. Pipe routing and tees.
 - e. Wire routing and splices.
2. Locations of installed equipment (valve, controller, sensors) shall be referenced by two permanent locations (swing ties) or GPS.
3. Make all notes legible as work progresses, any new equipment added shall use distinct symbols denoting location.
4. Document any changes from original Construction Drawings.
5. Prints of original Construction Drawings may be obtained from Owner's Representative at cost (0% markup).
6. Record Drawings shall be used as basis of payment for work completed. Provide copies of red-lined set to Owner's Representative along with payment request.

B. Record Documents

1. Record Documents shall be on-site at all times. Maintain record of following as project progresses:
 - a. Plumbing and Electrical permits (state whether or not required)
 - b. Materials Approved and approval date
 - c. Materials delivered, Accepted, and Installed by whom and date.
 - d. Field Communications and Requests for Information (RFI)

- C. Prior to final punchlist, provide complete electronic and hard copy files of Record Drawings and Documents to Owner's Representative as part of project completion. All information must be complete and shall be added to submitted documents prior to acceptance.

3.17 OPERATION AND MAINTENANCE MANUAL

A. General

1. Bid price shall include up to four (4) hours of irrigation system overview and instruction with Owner and/or Owner's Representative.

B. Operation and Maintenance Manual

1. Provide three (3) hard cover binders titled "Operation and Maintenance for High Street Streetscape" prior to requesting final commissioning and application for final payment.
2. Operation and Maintenance Manual shall include, but not be limited to:
 - a. Title Page and Table of Contents
 - b. One-Paragraph Written Description of Irrigation System

- c. Manufacturers' Data and Cut Sheets of Equipment, including:
 - 1) Copies of all approved submittals
 - 2) Wire resistance readings to each electric valve at completion (for future troubleshooting)
 - 3) Decoder barcodes and locations
 - 4) Recommended operating settings
 - 5) Recommended maintenance schedule
 - 6) Name, address, and telephone number of installer (for repairs, spring startup, and winterization during 1-year guarantee period)
 - 7) Irrigation program for periods without rain and recommended settings including, zone run time, days per week, cycle-soak, and rain sensor suspension.
- a. Winterization and Spring Startup Instructions (after 1-year guarantee period)
- b. Guarantee Data
- c. Pockets with Folded Plans of:
 - 1) Original Design Drawing
 - 2) Final Record Drawing
 - 3) Controller, Valve, and Wiring System Diagram Drawing

3.18 SITE CLEANUP

- A. Remove all unused materials and equipment from project site safely and efficiently.
- B. Dispose of all unused materials legally, including construction debris and trash.

3.19 COMMISSIONING SITE VISIT

- A. Pre-Commissioning Site Visit requirements to be submitted to Owner's Representative for approval:
 - 1. Pressure and Leak Test Results of Pipe Network
 - 2. Solenoid Valve Resistance Readings
 - 3. Grounding Rod Resistance Readings
 - 4. Receipt of Cellular Card, Antenna, and Data Service Plan
 - 5. Verification of Web-Enabled Application with:
 - a. Account Information (Login and Password)
 - b. Owner's Representative shall Login to verify system setup and programming
 - c. Push Notification and Short Messaging Service (SMS) setup to designated landscape managers and irrigation installer to notify of alerts during guarantee period.
 - 6. Screenshots of Learned Flow, Master Valve Enabling, and Programs.
 - 7. Connection and operation of pressure sensor, flow sensor, and weather sensing devices.
- B. Demonstrate to Owner and Owner's Representative during Commissioning Site Visit
 - 1. All components of irrigation system including:
 - a. Irrigation Cabinet with proper Paint, Markings, and Bollard Protection

- 1) Clean and neat layout of all components inside Irrigation Cabinet
 - 2) Pressure Gauges showing adequate pressure into and out of Irrigation Cabinet.
 - 3) Secured pipe, wire conduit, and controller to concrete pad.
 - b. Polymer Concrete Valve Boxes flush with sidewalk grade
 - c. Interiors of all Valve Boxes that have neat, clean valves and wiring
 - d. Hanging Planters with hidden drip tubing through chains and into potting soil
 2. Normal operation of irrigation watering sequence for two (2) minutes per zone sequentially.
 3. Ability to hand water through quick coupling valve with key.
 4. Ability of Normally Open (NO) Master Valve to close within three (3) minutes of abnormal flow using multiple quick coupling valves and multiple solenoid valves manually open.
- 3.20 FINAL OWNER ACCEPTANCE
- A. Final Owner Acceptance of Irrigation System is predicated on:
 1. Complete system installation, adjustment, testing, and instructional overview.
 2. Submission of Operation and Maintenance Manuals to Owner's Representative.
 3. Proper Programming of Automatic Irrigation Controller.
 4. Completed Commissioning of Irrigation System by Owner's Representative.
 - B. Owner and/or Owner's Representative shall provide written notice (hard copy and/or electronic) for Final Acceptance. Date of Final Acceptance notice shall serve as start of 1-year Guarantee period as described above.

COMPENSATION:

Item 762. – Hanging Plant Irrigation – Measurement and Payment under this Item shall be at the Contract Unit Price per Each, which price shall constitute full compensation for furnishing, installing, and integrating the Hanging Plant Irrigation into the total Irrigation system. The Item shall include all work associated with supplying irrigation from the 12-inch x 12-inch Polymer Concrete Valve Boxes, through the Pre-cast Concrete Foundation and into and up each light pole to the Hanging Plant. The work shall include the Polymer Concrete Valve Box, the water distribution tubing and the distribution tubing sleeve from the Valve Box, through the pre-cast foundation and extending up the light pole, and all associated valves and fittings and other equipment within the Valve Box. The work shall also include all drip emitters and multi-outlet emission devices as well as all labor, materials, fittings, valves and any other items required for a complete system for the delivery of water from the High Density Polyethylene (HDPE) pipe Irrigation System installed beneath the sidewalk.

Item 762.1 – Irrigation System – Measurement and Payment under this Item shall be at the Contract Unit Price per Lump Sum, which price shall constitute full compensation for furnishing, installing, and integrating the High Density Polyethylene (HDPE) and required Wire for delivering water from the Irrigation Control Box to each of the Polymer Concrete Valve Boxes. The Item shall include all work associated with supplying irrigation from the Irrigation Control Box to each 12-

inch x 12-inch Polymer Concrete Valve Box. The work shall include the labor, materials, excavation and backfill, placement of the piping, wire, nipples and fittings, electrofusion connections, direct burial splice kits and any other items required for a complete system for the delivery of water from the Irrigation Control Box to each of the Polymer Concrete Valve Boxes.

Item 762.12 – Irrigation Control Box – Measurement and Payment under this Item shall be at the Contract Unit Price per Lump Sum, which price shall constitute full compensation for furnishing and installing a complete Irrigation Control Box and integrating it with the full irrigation system. The Item shall include all work associated with supplying and installing a complete Irrigation Control Box, including the cabinet, service connections, and all required equipment within the cabinet or connected to the cabinet, as described on the plans and as part of this Item.

The combination of payment Items Item 762. – Hanging Plant Irrigation; Item 762.1 – Irrigation System; and Item 762.12 – Irrigation Control Box, shall constitute full compensation for all labor, transportation, materials, coordination with other trades, training, permits and fees, operation and maintenance manual, commissioning, guarantees and one winterization and spring start-up a complete working Irrigation System as shown on the plans and described as part of this Item. No additional payment shall be made for the installation of a complete system.

ITEM 772.338	CYPRESS – BALD 16-18 FEET	EACH
ITEM 775.443	LOCUST – HONEY – ‘HALAKA’ THORNLESS	EACH
ITEM 777.139	OAK – PIN – ‘PINGREEN’ GREEN PILLAR	EACH
ITEM 777.678	SWEETGUM - COLUMNAR	EACH
ITEM 778.387	CHERRY – SARGENT COLUMNAR	EACH
ITEM 783.641	ZELKOVA – ‘GREEN VASE’	EACH
ITEM 786.081	JUNIPER – BAR HARBOR 15-18 INCH	EACH
ITEM 787.246	YEW – HICK’S 4-5 FOOT	EACH
ITEM 789.731	CARYOPTERIS – ‘BLUE MIST BLUEBEARD’	EACH
ITEM 796.424	DWARF FOUNTAIN GRASS – ‘HAMELIN’	EACH
ITEM 796.427	FEATHER REED GRASS 2 GALLON	EACH
ITEM 796.446	LILLYTURF 1 GALLON	EACH
ITEM 796.763	DAYLILLY – ‘STELLA D’ORO’ 1 GALLON	EACH
ITEM 796.828	CATMINT – ‘WALKERS LOW’ 1 GALLON	EACH

The work under these Items shall conform to the relevant provisions of Section 771 of the Standard Specifications and the following:

METHOD OF MEASUREMENT

The quantity of plants to be paid for will be the number of living trees, shrubs, vines and ground cover plants of specified kinds and sizes furnished, planted and accepted in accordance with these specifications. Mulch for planting beds and tree pits shall be incidental to the cost of the plants and placed as required at a depth of 3 inches.

BASIS OF PAYMENT

The quantity of trees, shrubs, vines, and ground cover plants measured as provided above will be paid for at the contract unit prices per each for planting of the types, species and sizes called for in the bid schedule. The unit price per planting item shall include furnishing and delivering all plants, furnishing and delivering prepared backfill soil, mulch, fertilizer, excavation for plant pits, planting, pruning, guying and staking, mulching, weeding, watering, cleanup, plant establishment work and care including replacements, and for all labor, equipment, tools and incidentals necessary to complete the work prescribed in this section.

ITEM 811.91	LIGHTING HANDHOLE TYPE A	EACH
ITEM 811.92	LIGHTING HANDHOLE TYPE B	EACH

The work to be done under these Items shall consist of furnishing and installing lighting hand holes at the locations shown on the plans, or directed by the Engineer, including grounding rod and ground conductor.

All work performed shall be in accordance with Section 820, Highway Lighting, of the Standard Specifications, and as specified.

MATERIALS

Lighting Handhole Type A - Shall be 24 inches wide x 36 inches long x 24 inches deep and shall be a composite material as manufactured by "Quazite" (or equal) Catalog Number PG2436BA24, Tier 22. The handhole cover shall be a Heavy-Duty Cover Catalog Number PG2436HAOO, Tier 15. The word, LIGHTING shall be cast into the cover and the color shall match the materials surrounding the location as closely as possible.

Lighting Handhole Type B - Shall be 11 inches wide x 18 inches long x 12 inches deep and shall be a composite material as manufactured by "Quazite" (or equal) Catalog Number PG1118BA12, Tier 22. The handhole cover shall be a Heavy-Duty Cover Catalog Number PG1118HAOO, Tier 15. The word, LIGHTING shall be cast into the cover and the color shall match the materials surround the location as closely as possible.

Handholes shall be paid for at the Contract Unit Price per Each, which shall include all labor, materials, equipment, grounding rods and conductors, and all other incidental items and costs required to complete the work. No separate payment will be made for excavation, gravel borrow backfill, and compaction.

ITEM 812.09	LIGHT STANDARD FOUNDATION PRECAST	EACH
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The work under this Item shall conform to the relevant provisions of Sections 801 and 901 of the Standard Specifications and the following:

DESCRIPTION

The work consists of furnishing and installing a new pre-cast reinforced concrete foundations for the decorative light poles specified in this contract. Cast-in-place foundations will not be allowed. Each foundation shall be appropriately sized for the lighting pole, as specified and approved on the Shop Drawings, and shall be constructed with the necessary anchor bolts and pattern, reinforcing steel, Galvanized Rigid Steel Conduit (GRSC) sweeps for the lighting system and sleeving/sweeps for the flexible irrigation tubing and in accordance with the applicable requirements of Section 901. Cement Concrete Masonry. Foundations shall be made of minimum 4,000 psi concrete (at 28 days), 3/4 inch, 610 lb and have steel reinforcement meeting ASTM A-615, grade 60. The concrete cover from the ground surface to the steel shall be a minimum of 2 inches.

All unsuitable materials within the limits of the footing must be removed at the direction of the Engineer. Bases shall be set plumb and true to grade. Foundations shall include a 1 inch bevel along the top edge of the foundation and shall be installed 2 inches above the finished grade in sidewalk areas and 3 inches above the finished grade in grass areas. Anchor bolts shall meet the requirements of the light pole manufacturer.

Light Standard Foundation Precast Shop Drawings shall be stamped by a Professional Engineer Registered in the Commonwealth of Massachusetts

The Contractor shall locate the proposed locations of the foundations and then determine if any utilities or underground obstructions will prevent the installation at that location. If it appears that a utility may conflict, the Contractor shall request approval from the Engineer to perform a test pit for exploration to determine the exact limits of the utility. It may be necessary to excavate for the foundation utilizing drilled shaft equipment or Vactor excavation equipment, which shall be considered incidental to this Item. If the proposed foundation location is obstructed by utilities, the Contractor shall request permission from the Engineer to move or adjust the location of the base.

The foundations, bolts and conduit sweeps shall be protected from damages prior to and after they are installed. The Contractor shall also secure a construction barrel or other device over the top of the newly placed light pole foundation to avoid a tripping hazard until the new light pole can be installed, the cost of the barrel or other warning device shall be incidental to this Item.

METHOD OF MEASUREMENT

Light Standard Foundation Precast shall be measured for payment as per Each.

BASIS OF PAYMENT

Light Standard Foundation Precast shall be paid for at the Contract Unit price per Each, complete in place. This price shall be full compensation for furnishing and installing the foundations, including shop drawings, excavation (of any type), backfill, concrete, reinforcing steel, anchor bolts, hardware, conduit sweeps and sleeves for the lighting system and irrigation system, required ground rods for the lighting system, fittings, protection, labor, equipment and any other incidentals necessary to complete the work. Test Pits for Exploration will be paid for under Item 141.1.

<u>ITEM 821.111 DECORATIVE LIGHT POLE AND LUMINAIRE TYPE A</u>	<u>EACH</u>
<u>ITEM 821.112 DECORATIVE LIGHT POLE AND LUMINAIRE TYPE B</u>	<u>EACH</u>

The work under this Item shall include all labor, materials and equipment necessary to furnish and install decorative light poles and luminaires complete and ready for operation, in accordance with the applicable provisions of Section 813 and 820 of the Standard Specifications and the following.

The work shall include, but not be limited to, the installation of decorative light poles with Light-Emitting Diode (LED) luminaires configured as Type A (Single Post-Top) and Type B (Double bracket mounted post top) as shown on the drawings, inclusive of all pole accessories, arms, finials and decorations, pole wiring and all wiring within the system conduits, connectors, fusing, ballasts, light drivers, LEDs, GFCI receptacles, and appropriate grounding.

The Contractor shall provide all labor, materials, equipment, tools, supplies and transportation involved in the installation of the electrical equipment as specified. All work under these and other electrical systems shall conform to the requirements of the local power utility, the National Electric Code and the Town of Clinton Inspector of Wires.

SUBMITTALS:

Submittals for Decorative Light Poles and Luminaire Type A and Type B shall be fully coordinated and prepared as a cohesive package. The submission shall include a to-scale roll plan(s) depicting the entire project with the proposed fixtures and luminaires located in plan-view with the corresponding illumination levels/photometric output indicated as an overlay to the streetscape improvements.

The manufacturer's data, shop drawings and reports for all electrical and lighting equipment proposed for use shall include corresponding illumination and fixture performance information, including photometric data. Information submitted shall employ terminology, classifications, and methods prescribed by the IES Lighting Handbook, as applicable, for the lighting components.

Submit Manufacturer's data sheets/information for:

- Decorative Light Poles inclusive of all accessories.
- Luminaires, including lamps, ballast, wattage selector switch.
- LED components, Lamp sockets and Lamp-holders, distribution optics
- Independent Testing Laboratory Photometric Data
- Factory polyester powder-coat paint and finish process for all components
- Polyester powder-coat paint color and finish sample chips

Submit Shop drawings for:

- LED Luminaires: Include output and fabrication and assembly drawings. The luminaire housing appearance shall be identical between Type A and Type B. Illumination distribution patterns differ.
- Photometric Plans: To-scale roll plan shall be provided showing light pole and luminaire types, lighting optics and corresponding illumination levels in foot candles (fc) at the roadway surface. Values shall be calculated using 85% light levels. The Owner may accept or reject photometric plan submission based on layout, lamping and photometric performance. Additional submissions shall be made if required at no additional cost until the illumination levels indicated on the photometric plans and corresponding lighting equipment meet the Owner's approval.
- Decorative Light pole standards: including base cover, accessory elements, details, dimensions, wind loading, Effective Projected Area (EPA) ratings, pole deflection and other applicable information.
- Wind load calculations shall conform to AASHTO publication "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals", 2009 addition. Calculations and shop drawings shall be stamped by a Professional Engineer Registered in the Commonwealth of Massachusetts.
- Decorative Light Pole anchor bolt sizes, with yield strength with structural calculations.

- Shop drawings for the foundation shall be incidental to Item 812.09, Light Standard Foundation Precast

QUALITY CONTROL

Reference standards from the International Standardization Organization (ISO), the Illuminating Engineering Society of North America (IESNA), International Electrotechnical Commission (IEC) the Institute of Electrical and Electronics Engineers (IEEE) the International Commission on Illumination (CIE) the International Dark Sky Association (IDA), and the Municipal Solid State Street Lighting Consortium (MSSLC) Standards shall apply.

The manufacturer shall provide written confirmation of ISO 9001-2008 and ISO 14001-2004 International Quality Standards Certification.

MATERIALS:

Materials and products furnished shall be designed for the intended use, shall meet all requirements of the latest edition of the National Electric Code (NEC), and all local codes.

Materials shall be manufactured in accordance with the standards indicated in this Section and typical industry standards and codes for the products specified.

The materials used shall be new and of the best quality for the intended use. All equipment shall have the manufacturer's name, address, model, or type designations, serial number and all applicable ratings clearly marked in a location which can be readily observed after installation. The required information should be marked on durable nameplates that are permanently fastened to the equipment.

Electrical equipment shall be adequately protected against mechanical injury or damage by water during construction. Electrical equipment shall not be stored outside exposed to the elements. If any equipment or apparatus is damaged, such damage shall be repaired at no additional cost, or replaced at no additional cost as directed by the Engineer.

Wire & Cable

Luminaires shall be furnished fully wired with factory connections. Maximum operating temperature shall be 250 degrees. Copper wiring shall be used in the compartment. Harness and wiring insulation shall be THWN rated for 105° C and 600 volts. All wire and cable shall be incidental to the items listed herein.

This Item shall also include all of the underground wiring for the lighting system between handholes, light poles and the lighting load centers as shown on the plans.

Decorative Light Poles

The light poles shall be the same for both pole and luminaire configurations shown (Type A and

Type B) and shall be constructed to support the design load of both the single and double luminaires as indicated on the Drawings. The pole shaft shall be made of steel and shall be round and uniformly tapered from approximately 7-inch diameter at the bottom to 4-inch diameter at the top with mandrel-formed “fluting” for the length of the pole. The steel pole wall thickness shall be approximately .18 inch (4.6mm). The poles shall be permanently affixed with circumferential welds both top and bottom to steel base plates sized to support and secure the post with luminaires and all other specified accessories. The base plate shall be designed to accept four anchor bolts on a 10 to 13-inch bolt circle and the plate shall have a free opening in the center for conduit and wiring not less than 6” in diameter.

The light poles shall be provided with ½-inch diameter orifices in coordinated locations to accommodate internal irrigation lines, arranged to provide water to the hanging basket planters with a waterline thru the hanging basket support arms. Each opening for the irrigation lines shall be furnished with a rubber grommet to protect irrigation lines from abrasion or damage.

The pole and luminaire, with accessories, in all configurations shall be designed to withstand a wind speed of 130 mph with 3 second gusts. Structural calculations and shop drawings verifying conformance to AASHTO publication “Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals”, 2009 addition shall be provided. AASHTO breakaway requirements shall not apply. Shop drawings and calculations shall be submitted, stamped by a professional engineer registered in the Commonwealth of Massachusetts.

Multiple light pole manufacturers will be considered, however the light poles shall be similar to LUMEC, Pole Type R90D-044-17 BAS24(2)-FH-GFII-PS089-BKTX, to the extent possible, or an approved equal. The poles shall have nominal lengths as shown on the plans. Each decorative light pole shall include the following major components:

Base Cover Component - The decorative light pole base cover shall be cast, heavy wall construction with a minimum wall thickness of approximately 0.5 inches. The base cover shall be two-piece, with a single 4-inch x 10-inch access/maintenance opening furnished with a separate bolt on door/plate covering, aligned with the access opening in the pole shaft, for the purposes of making wiring connections. The base cover shall measure approximately 31 inches in height with a diameter of approximately 17 inches, suitable to enclose the pole base plate and anchor bolts where the assembly mounts to the foundation.

Anchor Bolts – Shall be designed specifically for this pole and luminaire configuration. The anchorage shall be fully coordinated with the light pole base plate and shall consist of four “J-Type Bolts” as specified by the light pole manufacturer and as approved on the Shop Drawings. The manufacturer shall provide the anchor bolt yield strength on the shop drawings and structural calculations.

Power Outlet -All of the light poles shall be furnished with a 15-amp GFCI receptacle and in-use weatherproof cover for field installation by contractor. The cover shall be metallic, low profile type and be painted to match pole shaft assembly. The outlet shall be recessed into the pole.

Banner Arms – A set of banner arms shall be furnished for each light pole. Arms shall be sized to accommodate one 18-inch wide x 42-inch long banner. When installed the banner arms shall be configured opposite the flagpole holder bracket, oriented 90 degrees to the hanging basket support arms. **The banners will be furnished and installed by the Town of Clinton and are not part of this contract.** The banner clamps shall be sized to fit to the pole shaft section for both upper and lower locations. Each clamp assembly shall include two ½-inch diameter stainless steel hex head machine bolt fasteners and locking hardware and shall allow no more than a ½-inch gap between the matching clamp surfaces when assembled to the pole shaft. The banner arms shall be made from 1-¼-inch schedule 40 steel pipe. One end of the pipe shall be equipped with a ¼-inch, number 20 set screw used to attach a removable cast aluminum finial.

Decorative Luminaire Bracket Arms – (*Cross-Arms*) Arms shall be furnished on Type B Decorative Poles and Luminaires, engineered to support a pair of Luminaires as shown on the Drawings. Brackets shall occur in pairs, as cast, twin decorative bracket arms configured 180 degrees (opposite each other) and affixed to a central round mounting adaptor designed to slip fit over the decorative light pole post-top tenon, secured by mechanical fasteners. The EPA shall not exceed 2.1 SF. Coordinate all components to accommodate wiring.

Decorative Hanging Basket Support Arms – A pair of cast ornamental, hanging planter support arms, configured 180 degrees (opposite each other) as shown in the drawings, shall be affixed to the decorative light pole. When installed on site the arms shall be set to be parallel with the curb. The arms shall be engineered to support a maximum weight of 100 pounds per arm and in all aspects coordinated with the design of the pole, with integral attachment points as fabricated at the factory. Arms shall be provided with ½-inch diameter orifices in four (4) locations to accommodate internal irrigation lines, furnished with rubber grommets to protect internal irrigation lines from abrasion. **The hanging plants, plant materials and any other required components, except for the Hanging Basket Support Arm shall be furnished and installed by the Town of Clinton and are not part of this contract.**

Flagpole Holder Bracket – Decorative Light Poles shall be configured with a flag holder oriented 90 degrees of the Hanging Basket Support Arms, extending toward the street. The flag holder shall be a steel tube sized to accept a 1” O.D. flagpole shaft. Design criteria shall be based on a maximum flag and pole weight of 20 pounds. The Flagpole Holder Bracket shall be angled at 45 degrees when installed plumb on the pole. The bracket shall consist of a hot dipped galvanized round steel tube welded to a U-channel base with provisions for mounting to the pole with thru-bolts. All components shall be engineered and coordinated with the design of the pole. **The flags shall be furnished and installed by the Town of Clinton and are not part of this contract.**

Luminaires – Luminaire housings shall be architecturally ‘traditional’ in appearance, designed for post-top mounting as shown on the Drawings. The luminaire top shall be one piece, round with a slightly domed profile with finial, and flat lens below. The housing shall have a domed top containing the light source and shall be supported by four arms without side lenses or a globe resulting in an ‘open design’ that is low maintenance and reflects a modern design aesthetic. The base of the luminaire shall be designed to mount to the pole or bracket arm below with a 4-inch diameter tenon and shall be fluted to match the appearance of the pole. The luminaire shall be

approximately 20-inches x 40-inches with an EPA of approximately 2 SF. The top shall be designed to contain the LED light source and light engine components.

The luminaires shall be designed to securely mount to the specified light pole top (Type A) and the twin bracket arm (Type B) tenon assemblies, by means of a slip fit component. The luminaire shall not have any openings or holes, except for the tenon application.

The luminaire shall contain completely pre-wired integral driver and optical system assembly. The luminaire shall be labeled internally and externally in accordance with ANSI C136.15. The luminaire shall be UL/UL listed for wet locations per UL 1598. The lighting components shall be accessed without the use of tools, via a hinged, IP rated weather-proof, gasketed cover.

Optical System - The top of the luminaire shall contain the light source. The light source shall be high performance light emitting diodes (LED), delivering warm, white light, with a color temperature of 3000 Kelvin (3000K +/- 130K) and have a CRI of at least 70. The fixture shall deliver low-glare uniform illumination from a minimum of 130 light emitting diodes configured within the top optical plate. The diodes shall be fully shielded from direct view by a diffuser lens that affords visual comfort by reducing glare. Provide 'house-side' shielding at LP # 27 and LP # 25 as noted in the Drawings.

The overall appearance and performance of the lighting optical system is of critical importance and as such all elements shall be fully compatible to produce low-glare uniform illumination of the roadway corridors. Refer to Submittal requirements. A to-scale roll plan shall be provided showing light pole and luminaire types, lighting optics and corresponding illumination levels in foot candles (fc) at the roadway surface. In general crosswalk locations shall not be less than 1.0fc. The street lighting system, inclusive of poles, luminaires and light optical system shall be coordinated to provide a minimum average foot candle illumination level on the roadway and sidewalks of 3.00 when measured at 85% maximum output level.

- Decorative Light Pole and Fixture configuration 'TYPE A' shall have both Type III and Type V light optical systems producing illumination as follows:
 - SL-3 Illumination Pattern: Single post-top luminaires shall be furnished with an IES Type III asymmetrical distribution, and an output of approximately 7450 lumens, with 95watt input configured. Light distribution shall be wide light projection, limited backlighting, and no upward light trespass, resulting in a BUG rating of B2-U0 -G2.
 - Multiple manufacturers will be considered, however all proposed materials shall be similar to LUMEC SL-3 Catalog No. MRTR-C-140L2100WW-G1-3-UNV-DMG-FN10-PH8-RCD-BKTX, to the extent possible, or approved equal.
 - SL-5 Illumination Pattern: Single post top luminaires shall be furnished with an IES Type V symmetrical distribution at curb-line neckdown locations, with an output of approximately 7575 lumens, with input voltage shall be 190 watts. Light distribution shall be configured equally to all sides, with no upward light trespass, resulting in a BUG rating of B2-U0-G2.

- Multiple manufacturers will be considered, however all proposed materials shall be similar to LUMEC SL-5 Catalog No. MRTR-C-140L2100WW-G1-5-UNV-DMG-FN10-PH8-RCD-BKTX, to the extent possible, or approved equal.
- Decorative Pole and Fixture configuration ‘TYPE B’ (Twin Luminaires)
 - SL-3a Illumination Pattern: A pair of Type III distribution with single post-top luminaires shall be positioned ‘back-to back’ on decorative luminaire bracket arms. Each shall have an output of approximately 7450 lumens, 95watt input. The fixture shall be furnished with an IES Type III asymmetrical distribution, configured for wide light projection, limited backlighting, and no upward light trespass, resulting in a BUG rating of B2-U0 -G2.
 - Multiple manufacturers will be considered, however all proposed materials shall be similar to LUMEC, MRTR-C-140L2100WW-G1-SL-3a-UNV-DMG-FN10-PH8-RCD-BKTX, to the extent possible, or approved equal.

The light optic systems shall be contained within the luminaire housing, and include diodes, driver, obscured lens, and access panel and shall operate as one coordinated system, with tool-less access and twist-loc connectors. The assembly shall have an IP 66 gasketed, weather-proof seal to protect the equipment. The optics shall be performance tested per LM-79 and TM-15 (IESNA). The luminaires shall be internally labeled in accordance with ANSI C136.22 and shall include manufacturer’s name and catalog number, month and year of manufacture, line input voltage, frequency (hertz) and ballast/driver type.

Light Driver & Electrical requirements: Electronic driver auto adjusting universal voltage input from 120-277 VAC Driver. Light input shall be 240 volts. The drivers shall produce a constant current at 350 mA. The operating range shall be 50-60 Hz.

All light drivers shall come with a minimum of four (4) factory preset illumination levels. Drivers shall allow the fixture light source to be dimmable, letting light levels be adjusted uniformly or on an individual pole-by-pole basis. The driver shall be configured to be dimming compatible with 0-10 volts, with the assembly configured in a tray with quick disconnect plugs.

Surge Protection in accordance with ANSI/IEEE C62.45 and ANSI/IEEE C62.41.2 Scenario I category C High Exposure. The electrical system shall be protected by a minimum of a 10kV surge suppressor.

Finishes– For Decorative Light Pole inclusive of Base Cover, Luminaire Bracket Arms, Hanging Basket Support Arms, Flagpole Holder Bracket and Banner Arm Assemblies

- Surface Preparation – The surfaces of all components to be coated shall be cleaned properly to remove oil, grease, or foreign contamination. All exterior surfaces shall be blast cleaned to Steel Structures Painting council Surface preparation Specification No.10 (SSPC-SP-10). By-products from the blasting process shall be “blown off” with dry, compressed air. Coating shall proceed within 8 hours of blasting. Should rust form on the surface prior to coating, the entire surface shall be re-blasted.

- Primer Coating – A zinc rich base primer coat shall be applied to all accessible interior and exterior surfaces of the pole base and shaft to a minimum dry film thickness (DFT) of 3 mils.
- Exterior Coating – Polyester Powder Coat Paint. All exterior surfaces shall be in accordance with AAMA 2603 standard. The paint shall be applied at 4 mils/100 microns +/- 1 mils. Finish shall conform to ASTM D2244, ASTM D523 and ASTM D2247 standards regarding finish discoloration resistance, luster retentions and humidity respectively. Coatings shall be applied by electrostatic spray equipment without runs, sags, thin spots, pinholes or unacceptable marks. Special attention shall be given to ensure that edges, corners, crevices, welds and fasteners receive a film thickness equivalent to that of the adjacent coated surfaces.
- All components exterior surfaces shall receive a factory applied TGIC polyester urethane powder coating. The finishing system shall protect from salt and chemical corrosion.
- Surface Preparation – All exterior surfaces shall be brush blast cleaned to SSPC-SP6. The surface finish shall uniform, durable and be shown to meet ASTM B 117 standard for over 2000 hours of salt spray resistance.
- The color shall be from the manufacturer's standard colors, factory applied, black, with a slightly 'crinkled' textured appearance.

EXPERIENCE / WARRANTIES

The light pole and luminaire manufacturer shall have been in the business of manufacturing outdoor lighting products for the municipal street lighting market for a minimum of ten (10) years. The steel pole shaft assembly shall be warranted by the manufacturer to repair and replace product that fails due to corrosion, structural defect or faulty workmanship within 25 years from date of shipment. The cast pole base shall be warranted by the manufacturer that their castings will be free from defects in material and workmanship under normal use and operation for 25 years. The twin decorative luminaire bracket arms (cross arms) and decorative hanging basket support arms shall be warranted against defects in material and workmanship under normal use for a period of 25 years

The luminaire shall be free from defects in material and workmanship for ten years. The warranty shall provide for the replacement or repair of the luminaire, including light source, drivers, surge protection and other integral components.

EXECUTION:

This section covers the requirements for installation of materials, proper workmanship, testing, cleaning, grounding, and work methods to be followed by the Contractor. This Section also includes specific instructions and to be used in conjunction with the Contract Drawings. Any discrepancies noted between the Specification, Drawings, and actual installation shall be reported immediately to the Engineer. Failure on the part of the Contractor to report discrepancies immediately will be considered negligent.

Work will be coordinated such that systems can be properly located, and conflicts and delays are avoided. The Engineer shall consider commencement of work Contractor acceptance of existing

conditions.

Materials & Workmanship

Work shall be executed in workmanlike manner and shall present a neat appearance when completed. All equipment, cabinets, and light posts shall be set plumb unless otherwise noted. Material and equipment shall be new and installed according to manufacturer's recommended best practice so that complete installation shall operate safely and efficiently.

Grounding-

Grounding of the decorative light poles and luminaires shall be in accordance with the latest edition of the National Electrical Code. The equipment bonding conductor shall be installed from the branch feeder circuit into the adjacent electric handhole and light pole base. The bonding conductor to be permanently attached to the metal light pole with a grounding stud provided by manufacturer or field installed if not provided. The bonding conductor to be bonded to the metal handhole cover, if present. Provide copper bonding conductor vertically up the length of the pole shaft along with the power conductors and bond it to the fixture ground stud and GFCI receptacle. Test all bonding conductors to be continuous back to source. Perform ground resistance testing at each pole location. Should ground resistance be less than 25 ohms, contractor shall provide additional ground rod electrode at the pole foundation, in accordance with NEC requirements. All grounding conductors shall be provided with either a green outer jacket or green marking tape.

Decorative Light Poles and Fixtures-

Coordinate all work with the installation of the irrigation system, with attention given to the assembly of the hanging basket support arms. Assemble units in a manner that allows the irrigation lines to be sleeved from the hanging baskets to the base of the light pole.

Assemble light posts with Flagpole Holder Brackets, Hanging Basket Support Arms, Banner Arms and Luminaire Bracket Arms configured as shown or as described. Care shall be given to protecting all components from damage and all surfaces from scuffs, chips or other marring of the finished surface.

Set luminaires and connect wiring. Prior to installation verify correct orientation. Leave protective packaging on the poles and luminaires. Utilize nylon fabric slings for lifting rated for this use. Adjust levelling bolts and set pole plumb. Bolt pole in place.

Testing, Inspection & Cleaning-

Test wiring and connections for continuity and grounds before fixtures are connected; demonstrate insulation resistance by megger test as required at not less than 500 volts. Insulation resistance between conductors and grounds for secondary distribution systems shall meet National Electrical Code (NEC) requirements. Make necessary wiring connections. All splicing shall be completed within hand holes or within the base of the pole.

Test lighting fixtures with specified LED modules in place for 100 hours. Replace any LED module trays completely upon experiencing any failure within 1 year after Final Acceptance at no

cost to the Owner.

COMPENSATION:

Payment under these Items shall be at the Contract Unit Price per Each, which price shall constitute full compensation for furnishing, installing and integrating Decorative Light Pole and Luminaire Type A and Type B into the roadway and sidewalk system. The work shall include, but not be limited to, furnishing and installing new light poles and luminaires, bracket arms, hanging basket (planter) support arms, ornamental base covers, flag pole holders brackets, banner arms, internal pole wiring, lighting system wiring within the conduit, testing, assembly, wattage selector switch, outdoor receptacles with GFI inclusive of all cable and wire, all components to be factory prepared and applied, polyester powder coat painted finish, color colored black, cable and wire.

ITEM 823.61	HIGHWAY LIGHTING LOAD CENTER NO.1	EACH
ITEM 823.62	HIGHWAY LIGHTING LOAD CENTER NO.2	EACH

The work to be done under this Item shall include, but not be limited to, the installation of all electrical wiring and cabling for the entire load center system, meter sockets, electrical metering, control cabinet, distribution panels, circuit breakers, GFI receptacles (where specified), foundations, appropriate grounding all in accordance with the applicable provisions of Sections 813 and 820 of the Standard Specifications. This Item shall also include conduit, cabling, and related fees to provide an underground service connection to the National Grid.

The Contractor shall obtain all necessary permits and licenses, file necessary plans, and pay all fees for permits and inspections. Permit fees are the responsibility of the Contractor as part of his bid.

SUBMITTALS

List of materials and equipment requiring shop drawings shall include:

1. Rigid Conduit
2. Panelboards
3. Service Cabinets and Equipment
4. Meter Sockets
5. Disconnect Switch
6. Circuit Breakers
7. Wiring Devices and Receptacles

MATERIALS

Materials and products furnished shall be designed for the intended use, shall meet all requirements of the latest edition of the National Electric Code (NEC), and all local codes.

Materials shall be manufactured in accordance with the standards indicated in this Section, and typical industry standards and codes for the products specified. Materials and equipment shall be

Underwriter's Laboratory (UL) listed.

The materials used shall be new, unused, and of the best quality for the intended use. All equipment shall have the manufacturer's name, address, model or type designation, serial number and all applicable ratings clearly marked thereon in a location which can be readily observed after installation. The required information should be marked on durable nameplates that are permanently fastened to the equipment.

Electrical equipment shall at all times during construction be adequately protected against mechanical injury or damage by water. Electrical equipment shall not be stored outside exposed to the elements. If any equipment or apparatus is damaged, such damage shall be repaired at no additional cost, or replaced at no additional cost as directed by the Engineer.

Wire & Cable

Unless otherwise noted, conductors for power, lighting, and grounding *above grade* shall be No. 12 through No. 8 AWG, NEC type THWN/THHN, meeting the requirements of UL 83. Conductors for power and lighting shall be no smaller than No. 12 AWG.

All conductors shall be annealed copper, 98% conductivity, Class B stranded, except conductors used for power and lighting circuits No. 10 AWG and smaller which may be solid. All conductors should be rated for 600 volts or less, with a thermal rating of 90° C.

The outside covering of all wiring for power, lighting, grounding, and control uses shall be color coded to identify polarity as follows:

<u>Phase</u>	<u>Color</u>
A or 1	Black
B or 2	Red
C or 3	Blue
Neutral	White
Equipment Ground	Green

Raceways (Conduit)

Non-Metallic Conduit Schedule 80

Flexible Metallic Conduit: UL1. Liquid tight flexible metal conduit shall be used in wet locations.

Minimum size of conduit shall be 3/4". Unless indicated on Drawings, conduit sizes can be sized in accordance with National Electric Code (NEC). Conduit bends shall not have kinks or flats, and shall not be less than standard radii.

Non-Metallic, Schedule 80 (NM) conduit shall be used for all power wiring, except where noted.

Conduits shall be made electrically continuous at coupling and connections to boxes and cabinets by means of joining fasteners or copper bond wires. Conduit shall be connected to grounded structural steel or the ground network. After assembly all conduit locknuts, all EMT coupling

fittings, and all bond wire screws shall be set up tight before installation of wiring. Insulated metallic bushings shall be used on all conduits entering panel cabinets, handholes, and wiring gutters, except on branch lighting circuits.

Expansion fittings shall be provided on all conduits as required by the latest National Electrical Code, and as required by local and state codes. This includes, but is not limited to, vertical conduit risers coming from below-grade.

Boxes

Outlet and Switch Boxes: NEMA OS 1.

Pull Boxes, Junction Boxes, and Equipment Enclosures: NEMA ICS 6.

Handholes, junction boxes, and equipment enclosures shall be of NEMA Type 1 construction for indoor use, and NEMA Type 3R construction for outdoor or wet location use, unless otherwise noted.

Box sizes shall not be less than that required by the Massachusetts Electrical Code.

Wiring Devices

Wiring Devices: NEMA WD 1.mm. They shall be specification grade, 20 ampere, ivory with Type 302 stainless steel plates. Ground fault current interrupter (GFCI) devices shall be provided where specified and/or required by applicable codes.

Panelboards

Panelboards: NEMA PB1, and UL 67. They shall be door-in-door construction with copper bus. Circuit breakers shall be molded case, thermal magnetic, bolt-on type rated as noted, and rated to match panelboard voltage and interrupting rating (22kA minimum). Circuit breakers should be capable of accepting up to #4 Awg wiring.

Panelboard to be 100A, 1-phase, 120/240V with circuit breaker minimum quantities as shown on Contract Drawings. Provide 200A/2Pole main circuit breaker in panel, and sufficient breakers for lighting circuits and receptacle in cabinet.

Meter Sockets

Meter Sockets: UL 414, UL 486B, and ANSI C12.7.

Outdoor meter sockets are to be NEMA 3R, and have vandal-proof covers to protect utility kWh meters (if specified). Unless otherwise noted, meter sockets shall be ringless, with lever bypass, tin plated connections, and have provision for a fifth terminal on single-phase applications.

Meter Socket shall be either heavy duty or medium duty, 100 ampere, ringless, 5 terminal, with approximate dimensions of 19"H x 13"W x 5"D. (Milbank U9319-XL, Eaton, Square-D or Brooks Manufacturing or approved equal). Socket to meet local utility requirements.

Load Center Cabinets

Provide outdoor NEMA 3R Highway Lighting Control Center Cabinet. Contractor to size cabinet to coordinate with sizes of panelboard and equipment to be installed within cabinets. Dimensions shown are typical and are for reference only. Cabinet to include all equipment shown or implied and all equipment shall be installed inside of cabinet without physical conflicts and per NEC. Cabinet to be sized for all necessary conduits, whether active, spare, or future as listed on panelboard schedules.

Cabinets to be manufactured from 14-gauge minimum stainless steel with 12-gauge steel panel, mounted inside. Cabinets to have integral keyed locking mechanism, keyed alike, with provision for padlock. Cabinets shall be ventilated type and **factory painted black powder-coat**. Cabinets to have door hold-open latches.

Provide outdoor-rated 100A meter socket mounted on the side of the cabinet to meet local utility requirements. Meter socket to be 100A, 120/240V, 10kA minimum AIC, NEMA 3R.

Provide the following internal components:

- Duplex GFCI receptacle, white, 20A, with stainless steel cover
- SPST switch, rated 120V, 20A for internal light switch
- 120V, 75W incandescent light fixture in ceramic socket inside of cabinet
- On/Off/Auto selector switch, rated 120V, 10A in NEMA 1 enclosure (2 total)
- Time Clock, 120V, SPST, 20A in NEMA 1 enclosure, with 365day 24/7 astronomical digital time.
- Lighting contactor, 12-pole, 20A, 240V rated, with 120V AC 10A minimum coil (2 total)
- Photocontrol, 120V, mounted through internal viewing window or drilled hole.
- Thermostat, 120V line voltage control, with 500W, 120V strip heater mounted inside of cabinet.
- Thermostat, 120V line voltage control with 100CFM exhaust fan mounted in cabinet.
- Louver in door with air filter.

Load Center Cabinet to be installed on new concrete foundation as shown and as directed. Contractor responsible for coordinating foundation dimensions to be 6-inches wider than cabinet. Furnish and install a paved pad in front of the control cabinet. This pad shall be of cement concrete, built in accordance with the sidewalk specification applicable to this project, approximately level, approximately 1" above the surrounding unpaved surface, or at even grade with the adjacent surface if paved.

EXECUTION:

This section covers the requirements for installation of materials, proper workmanship, testing, cleaning, grounding, and work methods to be followed by the Contractor. This Section also includes specific instructions and to be used in conjunction with the contract Drawings. Any discrepancies noted between the specification, Drawings, and actual installation shall be reported

immediately. Failure on the part of the Contractor to report discrepancies immediately will be considered negligent.

Work will be coordinated such that systems can be properly located, and conflicts and delays are avoided.

Materials and Workmanship

The Contractor's work shall be executed in workmanlike manner and shall present neat, rectilinear and mechanical appearance when completed. Material and equipment shall be new and installed according to manufacturer's recommended best practice so that complete installation shall operate safely and efficiently.

Testing, Inspection And Cleaning

The Contractor will test wiring and connections for continuity and grounds before fixtures are connected; demonstrate insulation resistance by megger test as required at not less than 500 volts. Insulation resistance between conductors and grounds for secondary distribution systems shall meet National Electrical Code (NEC) requirements.

Grounding

The Contractor shall ensure bond and ground equipment and systems connected under this Section are in accordance with standards of the NEC and other applicable regulations and codes.

The Conduit system shall be electrically continuous throughout, grounded at service entrance. Equipment frames, enclosures, boxes, etc. shall be grounded by use of green-jacketed (or bare copper) ground, sized as per Table 250-95 of the NEC.

Green bonding jumper shall be installed in flexible conduits.

Copper fittings for ground connections shall conform to the requirements of ASTM B 30. All bolts, u-bolts, cap screws, nuts, and lock washers for copper fitting shall be of approved corrosion-resisting material.

Ground Rods shall be 5/8" diameter and 8' in length, solid copper as required by applicable codes (NEC, NESC). Bonding connections to ground rods shall be permanent, welded or crimped, with copper connectors. All wire used for grounding shall be no smaller than #4 Awg copper, stranded conductor.

Contractor to provide two (2) 5/8" x 8'-0" copper ground rods, to be installed around the base of the new metering cabinets. Grounding to be installed per installation detail.

Electrical Service Conduit Installation

Conduit sweeps at metering cabinet shall be rigid galvanized steel (RGS), 24" minimum radius (as required by Utility). Provide 3-conductor, 3#3, #8G AWG 600V service cable with ground to utility transformer for new 100A service to metering cabinet.

Load Center Cabinet Installation

Contractor to provide new outdoor NEMA 3R stainless steel Highway Lighting Control Center Cabinet (factory painted color: black), with 100A, 5 terminal, meter socket mounted on the side of meter cabinet as indicated on the Drawings. Contractor to coordinate the incoming underground 100A service from the utility to the new Lighting Control Center Cabinet. Contractor to provide a 12-inch layer of 3/4" crushed stone (M2.01.4) under the foundation for drainage.

The street lighting cabinets will require temporary service connection if new undergrounding service connection location as shown on the plan is not ready. Temporary power shall consist of a 3" NM Schedule 80 conduit to the closest adjacent existing wooden utility pole with available electrical secondary cables. Contractor shall provide secondary cabling for 100A, single phase, 120/240V three-wire service from utility manhole to consist of 3#3 AWG with #8 AWG ground, type XHHW-2 600V power cable. Contractor shall install service per local utility requirements. Contractor shall feed meter socket on Electrical Cabinet, while providing provision for future underground service connection from new infrastructure as shown on Contract Drawings. Contractor shall provide all materials and labor and installation for a complete functional electrical service without any additional compensation.

COMPENSATION:

Payment made under this Item shall be at the Contract Unit Price bid per each, which sum shall include all labor, materials, concrete foundation, equipment required to furnish, install and test, complete in place and operational, the load center as specified herein. This price shall include associated electrical components, temporary service connection, miscellaneous hardware, service connection and 3 inch rigid steel conduit required for the service connection. It shall also include furnishing and installing all wiring and related connections, splices and hardware and incidental labor and equipment to complete and make operation the entire related lighting and outlet system.

No additional compensation will be made to National Grid fees or charges. Contractor shall be responsible for all charges and fees assessed by National Grid.

Lighting Controllers

Refer to drawings for details.

Outdoor Outlets:

Contractor to provide pole mounted outdoor weatherproof double duplex outlets w/GFI mounted as detailed in drawings.

All work performed shall be in accordance with Section 820, Highway Lighting of the Standard Specifications, and as specified in on the plans

The rigid conduit from each pedestal to National Grid secondary from manhole or riser pole and service conductors, as shown in drawings shall be included under this item. Contractor shall be coordinated with National Grid on penetrations into the National Grid manhole or connection to

riser pole. The Contractor shall connect conductors at the service pedestal and the utility to make the connection to its system. Contractor shall be responsible for charges.

Under this Item the Contractor shall furnish and install all wire and cable in accordance with the relevant provisions of Section 813 of the Standard Specifications. All wire and cable shall be U.L. listed including Wire Type 7 No. 10, No. 6 and No. 2 - General Purpose. The entire electrical wiring system for all service pedestals and their systems shall be tested for continuity, grounds and resistance to ground, insulation resistance, shorts, and opens in accordance with the requirements of Section 800 of the Standard Specifications.

Payment made under this Item shall be at the Contract Unit Price bid per Each, which compensation shall include all labor, materials, equipment required to furnish, install and test, complete in place and operational, the service pedestal as specified herein. This price shall include associated electrical components, miscellaneous hardware, service connection, material, and 3-inch rigid steel conduit required for the service connection as well as excavation and backfill of the trench. It shall also include furnishing and installing all wiring and related connections, splices and hardware and incidental labor and equipment to complete and make operation the entire related lighting and outlet system.

HIGHWAY LIGHTING POLE, BASE AND LUMINAIRE

<u>ITEM 823.71</u>	<u>REMOVED AND STACKED</u>	<u>EACH</u>
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All work performed shall be in accordance with Section 820, HIGHWAY LIGHTING, of the Standard Specifications, and as specified and the following:

The Contractor shall coordinate with the Engineer and National Grid (NGRID) before starting any work.

The Contractor is required to maintain the existing street lighting until the new street lighting can be installed and energized. The Contractor shall be required to place his new cement concrete sidewalk panels around the existing light poles and foundations until the new streetlights can be installed. The contractor shall utilize Item 472. – Temporary Asphalt Patching, to temporarily fill the surface area around the existing foundation/pole. The Contractor shall also secure a construction barrel or other device over the top of the newly placed light pole foundation to avoid a tripping hazard until the new light pole can be installed, the cost of the barrel or other warning device shall be incidental to this Item.

After the new light poles and fixtures are installed and energized and National Grid decommissions the existing street lights, the work shall include disconnecting the wiring, removing transporting and stacking the luminaires, poles and bases at the Town of Clinton's Public Works Yard at, 99 Woodlawn Street, Clinton, MA. The Contractor shall notify the Town prior to removal of the poles to determine which poles shall be delivered and stack and which poles shall become the property of the Contractor and properly disposed of. The cost of disposing of any existing light poles not required by the Town shall be incidental to this Item.

The Contractor shall exercise extreme caution when working near existing trees. The Contractor

shall exercise extreme caution when removing and stacking the existing luminaires so as not to damage them.

Payment for work under this Item shall be at the Contract Unit Price per Each, which price shall include full compensation for the complete removal and transportation of the existing street light poles, fixtures and bases, including any charges by NGRID for disconnection.

ITEM 852.11	TEMPORARY PEDESTRIAN BARRICADE	FOOT
ITEM 852.12	TEMPORARY PEDESTRIAN CURB RAMP	EACH

DESCRIPTION

Work under these items consist of furnishing, deploying, maintaining in proper operating conditions, repositioning/resetting and removing temporary pedestrian barricades and temporary pedestrian ramps as part of a Temporary Pedestrian Access Route (TPAR) in order to guide pedestrians around a fully- or partially-closed sidewalk. These devices are intended to prevent pedestrians from entering the work area and to prevent pedestrians from inadvertently entering the vehicle travel lane by providing visual and physical separation between each space.

MATERIALS

The Temporary Pedestrian Barricade shall have a continuous bottom rail or edge no more than two (2) inches above the ground and six (6) inches in height (minimum) to accommodate cane users, have a smooth and continuous hand railing along the top edge no less than 32 inches above the ground and not obstruct or project into the pedestrian path of travel. Barricade walls shall be nearly vertical and generally within the same plane.

If exposed to traffic, Temporary Pedestrian Barricades shall be crashworthy.

The Temporary Pedestrian Curb Ramp shall provide a 60 inch minimum width, with a firm, stable, and non-slip surface. Protective edging with a two (2) inch minimum height shall be installed when the curb ramp or landing platform has a vertical drop of six (6) inches or greater.

The Temporary Pedestrian Curb Ramp walkway and landing area surface shall be of a solid, continuous, contrasting color abutting up to the existing sidewalk.

If a Temporary Pedestrian Curb Ramp leads to a crosswalk, a detectable warning pad must be used at the base of the ramp; if it leads to a protected path that does not conflict with vehicular traffic then a detectable pad shall not be used.

CONSTRUCTION METHODS

The Temporary Pedestrian Barricade shall be placed in an area that will provide pedestrians with a TPAR on a smooth, continuous hard surface for its entirety. The geometry and alignment of the facility shall meet the applicable requirements of the "Americans with Disabilities Act

Accessibility Guidelines for Buildings and Facilities” and the Massachusetts Architectural Access Board.

The recommended width of the TPAR is 60 inches, but if constraints exist a minimum clear width of 48 inches shall be provided along its entirety. If a 60 inch width cannot be accommodated in full, a 60 inch by 60 inch passing space shall be provided every 200 feet or less along the TPAR.

Turning areas shall be 60 inches by 60 inches minimum.

Lateral joints between any surfaces shall not exceed 0.5 inches. Lateral edges may be vertical up to 0.25 inches high and shall be beveled at 1V:2H between 0.25 inches and 0.5 inches.

The TPAR shall be kept clear of debris, snow, and ice and the Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall not obstruct drainage.

Removal and repositioning/resetting of Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall be considered incidental.

COMPENSATION

Payment for Temporary Pedestrian Barricades will be made at the contract price per linear foot installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

Payment for Temporary Pedestrian Curb Ramps will be made at the contract price per each unit installed in place, including all incidental items. This price shall include the cost of furnishing, installing, repositioning/resetting, removal, and maintaining in good working condition.

ITEM 874.51	MISCELLANEOUS SIGNS REMOVED AND DISCARDED	LUMP SUM
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Work under this Item includes the dismantling, removal, transportation and discarding of the existing roadside signs shown on the plans and removal and disposal of the sign supports and their foundations.

The existing signs shall not be removed until the new signs and structures replacing them are ready for traffic or until the Engineer shall permit.

Payment for work to be done under this Item shall be the Lump Sum, which sum will be full compensation for dismantling, loading, transporting, and discarding of the signs as designated, the excavating and disposal of the existing foundation and supports, and the supplying and placing of compacted gravel backfill, where foundations and posts are removed.

ITEM 880.991 SIDEWALK VAULT MODIFICATION LUMP SUM

The work under this Item shall conform to the applicable provisions of the Standard Specifications and shall include the modifications to the sidewalk vault at the following location and as shown on the Plans and construction details, or as directed by the Engineer.

The work shall include, but not be limited to: the temporary protection and support of all electrical, fire protection, water, gas or other utilities located near or within the existing sidewalk vault during the modification work; the removal of the existing granite or concrete slabs, concrete or brick pavers currently spanning over the sidewalk vaults; partial demolition and capping of the existing stone, brick or concrete support walls; installation of metal stay-in-place forms, steel reinforcement, steel beams, placement of concrete, and other miscellaneous items of work as shown on the Plans.

The Contractor shall coordinate the work with the Engineer and the building owner, or their designated representative, in order to minimize impacts to the operation and use of the building. The Contractor shall make an evaluation of the vault prior to initiating any work and shall develop a plan of work and schedule for approval by the Engineer. Notice shall be given to the Town and building owner or designated representative at least 72 hours in advance of work on the vault. The Notice shall include that it shall be the responsibility of the building owner, or their designated representative, to remove all items stored within or near the vaults that are not physically attached to, or supported by, the walls, ceiling or support systems within the vault. All equipment or other items that not easily removable, as determined by the Engineer, shall remain and be protected by the Contractor.

As part of the work the Contractor shall coordinate with the building owner or their designated representative to ensure that access to the building is maintained at all times. This may include, but is not limited to, installation of temporary ramps and signing.

SECURITY AND PROTECTION

Measures to secure, protect from exposure to weather and prevent unauthorized access to the basement, building or sidewalk vault areas, during working and non-working hours, shall be included as part of this Item. Measures may include: the placement of steel roadway plates and tarpaulins over the opened vault area; constructing temporary partition walls within the building basement to cordon off sidewalk vault areas; hiring an independent security company; providing police details solely related to providing security and protection, or other measures as may be appropriate. All costs for security and protection costs as required for this Item shall be paid directly by the contractor and shall be incidental to the item.

Prior to the removal of the existing sidewalk vault roof, the Contractor and Engineer shall determine what security and protection measures will be required. The Contractor shall prepare a plan of action to secure and protect the building basement and sidewalk vault area for review and approval by the Engineer. Said plan shall be coordinated and approved by the Engineer and the building owner, or their designated representative prior to implementation.

Measures to secure, protect from weather exposure and prevent unauthorized access shall be coordinated with the building owner prior to initiating work on the vault to identify any specific

issues that need to be addressed and to allow the building owner the opportunity to remove any material or equipment from the vault area.

PRE- AND POST-CONSTRUCTION CONDITION SURVEYS

The work under this Item shall include performing a pre- and post-construction condition survey of the existing vault area, as required by the Engineer. The intent of the pre- and post-construction condition surveys is to document the condition of the vault and the items within the vault area (utilities, equipment, structural framing members, etc.) prior to and after construction. The pre-construction survey will form a baseline for later comparison to the post-construction survey to evaluate impacts (if any) from construction activities. The two surveys could also be useful to evaluate construction-related damage claims that could later arise from the building owner.

The pre- and post-construction condition surveys shall be performed by a Professional Engineer registered in the Commonwealth of Massachusetts. The Contractor's Professional Engineer shall have been in business for at least five consecutive years and shall have completed in the past five years at least 5 building condition surveys similar to those specified herein.

At least 14 days prior to the start of the Work, the Contractor shall submit the resume of the Registered Professional Engineer who will be performing the surveys.

At least 14 days prior to the start of the Work, the Contractor shall submit the methods to be used for the building survey. The submittal shall include proposed agreement forms between the Contractor and building owners allowing access for surveys.

At least 14 days prior to the start of the Work, the Contractor shall submit a pre-construction condition survey conforming to the requirements specified herein.

No more than 30 days after substantial completion, the Contractor shall submit a post-construction condition survey conforming to the requirements specified herein.

The Contractor shall coordinate the pre- and post-construction survey schedule with the Engineer. The Contractor shall arrange for access to the building for surveys. Building access agreement forms shall be sent to Owner's via Certified Mail.

The Contractor's Professional Engineer and the project Engineer must be present during each survey.

The pre- and post-construction condition surveys shall include the vault and its adjacent areas, the building facades over the vaults, and the interiors of the buildings in the rooms behind those facades.

Surveys shall be performed in accordance with the Contractor's reviewed and approved submittal. Written property owner access agreement forms must be obtained by the Contractor prior to entering the property.

The Contractor's Professional Engineer shall submit results of the survey in a report format,

including checklists, sketches and photographs.

BASIS OF PAYMENT

Items 880.991 will be paid for at the Contract unit price per Lump Sum, which price shall include all labor, materials, equipment, security and protection costs, and all incidental costs required to complete the work.

ITEM 881. CONCRETE RAMP AND ADA RAILING LUMP SUM

The work to be done under this item shall conform to the relevant provisions of the MassDOT Standard Specifications and the following:

The work shall consist of furnishing all labor, equipment, materials, for an ADA compliant concrete ramp and railing to be installed at the location shown on the plan or as directed.

The Concrete for the ramp shall match the concrete utilized for the cement concrete sidewalks, including strength, aggregate size and color.

The handrail shall be fabricated and installed in accordance with the detail shown on the plans and the requirements of the Massachusetts Architectural Access Board (AAB) 521 CMR 24.

All materials shall conform to the appropriate Standard Specifications.

All posts shall be set plumb and true and shall be drilled and grouted into the existing concrete ramp.

COMPENSATION

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Items 881. shall be paid for at the Contract unit price per Lump Sum, which price shall include all labor, materials, fabrication, drilling and grouting, excavation concrete, form work and all other incidental costs required to complete the work.

END OF SECTION

APPENDIX A – PREVAILING WAGE RATES



CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

**As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H**

ROSALIN ACOSTA
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: Clinton, Massachusetts

Contract Number:

City/Town: CLINTON

Description of Work: The reconstruction of High Street and Church Street, including full depth pavement reconstruction, new granite curbing, sidewalks, street lighting, drainage, and traffic markings and signs.

Job Location: High St and Church St, Clinton, MA

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2020	\$35.15	\$12.41	\$13.72	\$0.00	\$61.28
	08/01/2020	\$35.15	\$12.91	\$13.72	\$0.00	\$61.78
	12/01/2020	\$35.15	\$12.91	\$14.82	\$0.00	\$62.88
	06/01/2021	\$35.95	\$12.91	\$14.82	\$0.00	\$63.68
	08/01/2021	\$35.95	\$13.41	\$14.82	\$0.00	\$64.18
	12/01/2021	\$35.95	\$13.41	\$16.01	\$0.00	\$65.37
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2020	\$35.22	\$12.41	\$13.72	\$0.00	\$61.35
	08/01/2020	\$35.22	\$12.91	\$13.72	\$0.00	\$61.85
	12/01/2020	\$35.22	\$12.91	\$14.82	\$0.00	\$62.95
	06/01/2021	\$36.02	\$12.91	\$14.82	\$0.00	\$63.75
	08/01/2021	\$36.02	\$13.41	\$14.82	\$0.00	\$64.25
	12/01/2021	\$36.02	\$13.41	\$16.01	\$0.00	\$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2020	\$35.34	\$12.41	\$13.72	\$0.00	\$61.47
	08/01/2020	\$35.34	\$12.91	\$13.72	\$0.00	\$61.97
	12/01/2020	\$35.34	\$12.91	\$14.82	\$0.00	\$63.07
	06/01/2021	\$36.14	\$12.91	\$14.82	\$0.00	\$63.87
	08/01/2021	\$36.14	\$13.41	\$14.82	\$0.00	\$64.37
	12/01/2021	\$36.14	\$13.41	\$16.01	\$0.00	\$65.56
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.81	\$8.60	\$15.77	\$0.00	\$59.18
	12/01/2020	\$35.70	\$8.60	\$15.77	\$0.00	\$60.07
	06/01/2021	\$36.62	\$8.60	\$15.77	\$0.00	\$60.99
	12/01/2021	\$37.53	\$8.60	\$15.77	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)</i>	06/01/2020	\$38.00	\$12.50	\$8.85	\$0.00	\$59.35
	12/01/2020	\$39.00	\$12.50	\$8.85	\$0.00	\$60.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$49.33	\$13.00	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.48	\$13.00	\$15.70	\$0.00	\$79.18
	06/01/2021	\$51.58	\$13.00	\$15.70	\$0.00	\$80.28
	12/01/2021	\$52.73	\$13.00	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$49.33	\$13.00	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.48	\$13.00	\$15.70	\$0.00	\$79.18
	06/01/2021	\$51.58	\$13.00	\$15.70	\$0.00	\$80.28
	12/01/2021	\$52.73	\$13.00	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.81	\$8.60	\$15.77	\$0.00	\$59.18
	12/01/2020	\$35.70	\$8.60	\$15.77	\$0.00	\$60.07
	06/01/2021	\$36.62	\$8.60	\$15.77	\$0.00	\$60.99
	12/01/2021	\$37.53	\$8.60	\$15.77	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2020	\$46.10	\$7.07	\$17.98	\$0.00	\$71.15

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
2	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
3	70	\$32.27	\$7.07	\$12.59	\$0.00	\$51.93
4	75	\$34.58	\$7.07	\$13.49	\$0.00	\$55.14
5	80	\$36.88	\$7.07	\$14.38	\$0.00	\$58.33
6	85	\$39.19	\$7.07	\$15.29	\$0.00	\$61.55
7	90	\$41.49	\$7.07	\$16.18	\$0.00	\$64.74
8	95	\$43.80	\$7.07	\$17.09	\$0.00	\$67.96

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (WORCESTER)</i>	02/01/2020	\$52.26	\$10.75	\$21.30	\$0.00	\$84.31
	08/01/2020	\$53.61	\$10.75	\$21.45	\$0.00	\$85.81
	02/01/2021	\$54.21	\$10.75	\$21.45	\$0.00	\$86.41
	08/01/2021	\$55.61	\$10.75	\$21.61	\$0.00	\$87.97
	02/01/2022	\$56.19	\$10.75	\$21.61	\$0.00	\$88.55

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Worcester

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.13	\$10.75	\$21.30	\$0.00	\$58.18
2	60	\$31.36	\$10.75	\$21.30	\$0.00	\$63.41
3	70	\$36.58	\$10.75	\$21.30	\$0.00	\$68.63
4	80	\$41.81	\$10.75	\$21.30	\$0.00	\$73.86
5	90	\$47.03	\$10.75	\$21.30	\$0.00	\$79.08

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.81	\$10.75	\$21.45	\$0.00	\$59.01
2	60	\$32.17	\$10.75	\$21.45	\$0.00	\$64.37
3	70	\$37.53	\$10.75	\$21.45	\$0.00	\$69.73
4	80	\$42.89	\$10.75	\$21.45	\$0.00	\$75.09
5	90	\$48.25	\$10.75	\$21.45	\$0.00	\$80.45

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER OPERATING ENGINEERS LOCAL 4	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN LABORERS - FOUNDATION AND MARINE	06/01/2020	\$40.30	\$8.60	\$17.24	\$0.00	\$66.14
	12/01/2020	\$41.28	\$8.60	\$17.24	\$0.00	\$67.12
	06/01/2021	\$42.30	\$8.60	\$17.24	\$0.00	\$68.14
	12/01/2021	\$43.31	\$8.60	\$17.24	\$0.00	\$69.15
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER LABORERS - FOUNDATION AND MARINE	06/01/2020	\$39.15	\$8.60	\$17.24	\$0.00	\$64.99
	12/01/2020	\$40.13	\$8.60	\$17.24	\$0.00	\$65.97
	06/01/2021	\$41.15	\$8.60	\$17.24	\$0.00	\$66.99
	12/01/2021	\$42.16	\$8.60	\$17.24	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN LABORERS - FOUNDATION AND MARINE	06/01/2020	\$39.15	\$8.60	\$17.24	\$0.00	\$64.99
	12/01/2020	\$40.13	\$8.60	\$17.24	\$0.00	\$65.97
	06/01/2021	\$41.15	\$8.60	\$17.24	\$0.00	\$66.99
	12/01/2021	\$42.16	\$8.60	\$17.24	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR LABORERS - ZONE 2	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARPENTER	03/01/2020	\$42.50	\$9.40	\$18.95	\$0.00	\$70.85
CARPENTERS -ZONE 2 (Eastern Massachusetts)	09/01/2020	\$43.15	\$9.40	\$18.95	\$0.00	\$71.50
	03/01/2021	\$43.75	\$9.40	\$18.95	\$0.00	\$72.10
	09/01/2021	\$44.40	\$9.40	\$18.95	\$0.00	\$72.75
	03/01/2022	\$45.00	\$9.40	\$18.95	\$0.00	\$73.35
	09/01/2022	\$45.65	\$9.40	\$18.95	\$0.00	\$74.00
	03/01/2023	\$46.25	\$9.40	\$18.95	\$0.00	\$74.60

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.25	\$9.40	\$1.73	\$0.00	\$32.38
2	60	\$25.50	\$9.40	\$1.73	\$0.00	\$36.63
3	70	\$29.75	\$9.40	\$13.76	\$0.00	\$52.91
4	75	\$31.88	\$9.40	\$13.76	\$0.00	\$55.04
5	80	\$34.00	\$9.40	\$15.49	\$0.00	\$58.89
6	80	\$34.00	\$9.40	\$15.49	\$0.00	\$58.89
7	90	\$38.25	\$9.40	\$17.22	\$0.00	\$64.87
8	90	\$38.25	\$9.40	\$17.22	\$0.00	\$64.87

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.58	\$9.40	\$1.73	\$0.00	\$32.71
2	60	\$25.89	\$9.40	\$1.73	\$0.00	\$37.02
3	70	\$30.21	\$9.40	\$13.76	\$0.00	\$53.37
4	75	\$32.36	\$9.40	\$13.76	\$0.00	\$55.52
5	80	\$34.52	\$9.40	\$15.49	\$0.00	\$59.41
6	80	\$34.52	\$9.40	\$15.49	\$0.00	\$59.41
7	90	\$38.84	\$9.40	\$17.22	\$0.00	\$65.46
8	90	\$38.84	\$9.40	\$17.22	\$0.00	\$65.46

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$30.26/ 3&4 \$36.18/ 5&6 \$54.64/ 7&8 \$60.62

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME	10/01/2019	\$27.95	\$7.07	\$7.86	\$0.00	\$42.88
CARPENTERS -ZONE 2 (Wood Frame)						
All Aspects of New Wood Frame Work						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - CARPENTER (Wood Frame) - Zone 2

Effective Date - 10/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.77	\$7.07	\$0.00	\$0.00	\$23.84
2	60	\$16.77	\$7.07	\$0.00	\$0.00	\$23.84
3	65	\$18.17	\$7.07	\$7.86	\$0.00	\$33.10
4	70	\$19.57	\$7.07	\$7.86	\$0.00	\$34.50
5	75	\$20.96	\$7.07	\$7.86	\$0.00	\$35.89
6	80	\$22.36	\$7.07	\$7.86	\$0.00	\$37.29
7	85	\$23.76	\$7.07	\$7.86	\$0.00	\$38.69
8	90	\$25.16	\$7.07	\$7.86	\$0.00	\$40.09

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$19.65/ 3&4 \$27.19/ 5&6 \$34.50/ 7&8 \$37.29

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (WORCESTER)	01/01/2020	\$47.14	\$12.75	\$22.41	\$0.62	\$82.92
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Apprentice - CEMENT MASONRY/PLASTERING - Worcester

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.57	\$12.75	\$15.41	\$0.00	\$51.73
2	60	\$28.28	\$12.75	\$17.41	\$0.62	\$59.06
3	65	\$30.64	\$12.75	\$18.41	\$0.62	\$62.42
4	70	\$33.00	\$12.75	\$19.41	\$0.62	\$65.78
5	75	\$35.36	\$12.75	\$20.41	\$0.62	\$69.14
6	80	\$37.71	\$12.75	\$21.41	\$0.62	\$72.49
7	90	\$42.43	\$12.75	\$22.41	\$0.62	\$78.21

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR LABORERS - ZONE 2	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4	06/01/2020	\$50.33	\$13.00	\$15.70	\$0.00	\$79.03
	12/01/2020	\$51.48	\$13.00	\$15.70	\$0.00	\$80.18
	06/01/2021	\$52.58	\$13.00	\$15.70	\$0.00	\$81.28
	12/01/2021	\$53.73	\$13.00	\$15.70	\$0.00	\$82.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$32.72	\$13.00	\$15.70	\$0.00	\$61.42
	12/01/2020	\$33.50	\$13.00	\$15.70	\$0.00	\$62.20
	06/01/2021	\$34.25	\$13.00	\$15.70	\$0.00	\$62.95
	12/01/2021	\$35.04	\$13.00	\$15.70	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2020	\$51.51	\$8.25	\$22.40	\$0.00	\$82.16
	01/01/2021	\$52.06	\$8.25	\$22.75	\$0.00	\$83.06

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.76	\$8.25	\$0.00	\$0.00	\$34.01
2	55	\$28.33	\$8.25	\$6.05	\$0.00	\$42.63
3	60	\$30.91	\$8.25	\$6.60	\$0.00	\$45.76
4	65	\$33.48	\$8.25	\$7.15	\$0.00	\$48.88
5	70	\$36.06	\$8.25	\$19.10	\$0.00	\$63.41
6	75	\$38.63	\$8.25	\$19.65	\$0.00	\$66.53
7	80	\$41.21	\$8.25	\$20.20	\$0.00	\$69.66
8	90	\$46.36	\$8.25	\$21.30	\$0.00	\$75.91

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$8.25	\$0.00	\$0.00	\$34.28
2	55	\$28.63	\$8.25	\$6.16	\$0.00	\$43.04
3	60	\$31.24	\$8.25	\$6.72	\$0.00	\$46.21
4	65	\$33.84	\$8.25	\$7.28	\$0.00	\$49.37
5	70	\$36.44	\$8.25	\$19.39	\$0.00	\$64.08
6	75	\$39.05	\$8.25	\$19.95	\$0.00	\$67.25
7	80	\$41.65	\$8.25	\$20.51	\$0.00	\$70.41
8	90	\$46.85	\$8.25	\$21.63	\$0.00	\$76.73

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN <i>LABORERS - ZONE 2</i>	12/01/2019	\$39.30	\$8.10	\$16.60	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2019	\$40.30	\$8.10	\$16.60	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS <i>LABORERS - ZONE 2</i>	12/01/2019	\$40.05	\$8.10	\$16.60	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 2</i>	12/01/2019	\$40.30	\$8.10	\$16.60	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2019	\$40.05	\$8.10	\$16.60	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	12/01/2019	\$39.30	\$8.10	\$16.60	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2019	\$68.52	\$9.90	\$21.15	\$0.00	\$99.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2019	\$73.41	\$9.90	\$21.15	\$0.00	\$104.46
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
ELECTRICIAN <i>ELECTRICIANS LOCAL 96</i>	07/01/2019	\$44.07	\$10.72	\$16.04	\$0.00	\$70.83

Apprentice - *ELECTRICIAN - Local 96*

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.63	\$10.72	\$0.53	\$0.00	\$28.88
2	43	\$18.95	\$10.72	\$0.57	\$0.00	\$30.24
3	48	\$21.15	\$10.72	\$12.93	\$0.00	\$44.80
4	55	\$24.24	\$10.72	\$13.27	\$0.00	\$48.23
5	65	\$28.65	\$10.72	\$13.88	\$0.00	\$53.25
6	80	\$35.26	\$10.72	\$14.81	\$0.00	\$60.79

Notes:

Steps 1-2 are 1000 hrs; Steps 3-6 are 1500 hrs.

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR <i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2020	\$54.85	\$15.73	\$18.41	\$0.00	\$88.99
	01/01/2021	\$56.69	\$15.88	\$19.31	\$0.00	\$91.88
	01/01/2022	\$58.62	\$16.03	\$20.21	\$0.00	\$94.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - ELEVATOR CONSTRUCTOR - Local 41

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.43	\$15.73	\$0.00	\$0.00	\$43.16
2	55	\$30.17	\$15.73	\$18.41	\$0.00	\$64.31
3	65	\$35.65	\$15.73	\$18.41	\$0.00	\$69.79
4	70	\$38.40	\$15.73	\$18.41	\$0.00	\$72.54
5	80	\$43.88	\$15.73	\$18.41	\$0.00	\$78.02

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.35	\$15.88	\$0.00	\$0.00	\$44.23
2	55	\$31.18	\$15.88	\$19.31	\$0.00	\$66.37
3	65	\$36.85	\$15.88	\$19.31	\$0.00	\$72.04
4	70	\$39.68	\$15.88	\$19.31	\$0.00	\$74.87
5	80	\$45.35	\$15.88	\$19.31	\$0.00	\$80.54

Notes:

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER	01/01/2020	\$38.40	\$15.73	\$18.41	\$0.00	\$72.54
ELEVATOR CONSTRUCTORS LOCAL 41	01/01/2021	\$39.68	\$15.88	\$19.31	\$0.00	\$74.87
	01/01/2022	\$41.03	\$16.03	\$20.21	\$0.00	\$77.27
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
LABORERS - ZONE 2	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	05/01/2020	\$44.73	\$12.50	\$15.70	\$0.00	\$72.93
OPERATING ENGINEERS LOCAL 4	11/01/2020	\$45.73	\$12.50	\$15.70	\$0.00	\$73.93
	05/01/2021	\$46.88	\$12.50	\$15.70	\$0.00	\$75.08
	11/01/2021	\$47.88	\$12.50	\$15.70	\$0.00	\$76.08
	05/01/2022	\$49.03	\$12.50	\$15.70	\$0.00	\$77.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY	05/01/2020	\$46.23	\$12.50	\$15.70	\$0.00	\$74.43
OPERATING ENGINEERS LOCAL 4	11/01/2020	\$47.24	\$12.50	\$15.70	\$0.00	\$75.44
	05/01/2021	\$48.40	\$12.50	\$15.70	\$0.00	\$76.60
	11/01/2021	\$49.41	\$12.50	\$15.70	\$0.00	\$77.61
	05/01/2022	\$50.57	\$12.50	\$15.70	\$0.00	\$78.77
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2020	\$22.64	\$12.50	\$15.70	\$0.00	\$50.84
	11/01/2020	\$23.23	\$12.50	\$15.70	\$0.00	\$51.43
	05/01/2021	\$23.91	\$12.50	\$15.70	\$0.00	\$52.11
	11/01/2021	\$24.51	\$12.50	\$15.70	\$0.00	\$52.71
	05/01/2022	\$25.18	\$12.50	\$15.70	\$0.00	\$53.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 96</i>	07/01/2019	\$44.07	\$10.72	\$16.04	\$0.00	\$70.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINT/COMMISSIONING <i>ELECTRICIANS LOCAL 96</i>	07/01/2019	\$44.07	\$10.72	\$16.04	\$0.00	\$70.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$40.30	\$13.00	\$15.70	\$0.00	\$69.00
	12/01/2020	\$41.25	\$13.00	\$15.70	\$0.00	\$69.95
	06/01/2021	\$42.16	\$13.00	\$15.70	\$0.00	\$70.86
	12/01/2021	\$43.11	\$13.00	\$15.70	\$0.00	\$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 2</i>	06/01/2020	\$23.50	\$8.60	\$15.77	\$0.00	\$47.87
	12/01/2020	\$24.50	\$8.60	\$15.77	\$0.00	\$48.87
	06/01/2021	\$24.50	\$8.60	\$15.77	\$0.00	\$48.87
	12/01/2021	\$24.50	\$8.60	\$15.77	\$0.00	\$48.87
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE II</i>	03/01/2020	\$44.74	\$9.40	\$19.25	\$0.00	\$73.39
	09/01/2020	\$45.54	\$9.40	\$19.25	\$0.00	\$74.19
	03/01/2021	\$46.34	\$9.40	\$19.25	\$0.00	\$74.99
	09/01/2021	\$47.14	\$9.40	\$19.25	\$0.00	\$75.79
	03/01/2022	\$47.94	\$9.40	\$19.25	\$0.00	\$76.59

Apprentice - FLOORCOVERER - Local 2168 Zone II

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.37	\$9.40	\$1.79	\$0.00	\$33.56
2	55	\$24.61	\$9.40	\$1.79	\$0.00	\$35.80
3	60	\$26.84	\$9.40	\$13.88	\$0.00	\$50.12
4	65	\$29.08	\$9.40	\$13.88	\$0.00	\$52.36
5	70	\$31.32	\$9.40	\$15.67	\$0.00	\$56.39
6	75	\$33.56	\$9.40	\$15.67	\$0.00	\$58.63
7	80	\$35.79	\$9.40	\$17.46	\$0.00	\$62.65
8	85	\$38.03	\$9.40	\$17.46	\$0.00	\$64.89

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.77	\$9.40	\$1.79	\$0.00	\$33.96
2	55	\$25.05	\$9.40	\$1.79	\$0.00	\$36.24
3	60	\$27.32	\$9.40	\$13.88	\$0.00	\$50.60
4	65	\$29.60	\$9.40	\$13.88	\$0.00	\$52.88
5	70	\$31.88	\$9.40	\$15.67	\$0.00	\$56.95
6	75	\$34.16	\$9.40	\$15.67	\$0.00	\$59.23
7	80	\$36.43	\$9.40	\$17.46	\$0.00	\$63.29
8	85	\$38.71	\$9.40	\$17.46	\$0.00	\$65.57

Notes: Steps are 750 hrs.

% After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)

Step 1&2 \$31.32/ 3&4 \$37.53/ 5&6 \$56.39/ 7&8 \$62.65

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER	06/01/2020	\$49.33	\$13.00	\$15.70	\$0.00	\$78.03
OPERATING ENGINEERS LOCAL 4	12/01/2020	\$50.48	\$13.00	\$15.70	\$0.00	\$79.18
	06/01/2021	\$51.58	\$13.00	\$15.70	\$0.00	\$80.28
	12/01/2021	\$52.73	\$13.00	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS	06/01/2020	\$32.72	\$13.00	\$15.70	\$0.00	\$61.42
OPERATING ENGINEERS LOCAL 4	12/01/2020	\$33.50	\$13.00	\$15.70	\$0.00	\$62.20
	06/01/2021	\$34.25	\$13.00	\$15.70	\$0.00	\$62.95
	12/01/2021	\$35.04	\$13.00	\$15.70	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	07/01/2020	\$41.01	\$8.25	\$22.40	\$0.00	\$71.66
GLAZIERS LOCAL 35 (ZONE 2)	01/01/2021	\$41.56	\$8.25	\$22.75	\$0.00	\$72.56

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - GLAZIER - Local 35 Zone 2
Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.51	\$8.25	\$0.00	\$0.00	\$28.76
2	55	\$22.56	\$8.25	\$6.05	\$0.00	\$36.86
3	60	\$24.61	\$8.25	\$6.60	\$0.00	\$39.46
4	65	\$26.66	\$8.25	\$7.15	\$0.00	\$42.06
5	70	\$28.71	\$8.25	\$19.10	\$0.00	\$56.06
6	75	\$30.76	\$8.25	\$19.65	\$0.00	\$58.66
7	80	\$32.81	\$8.25	\$20.20	\$0.00	\$61.26
8	90	\$36.91	\$8.25	\$21.30	\$0.00	\$66.46

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.78	\$8.25	\$0.00	\$0.00	\$29.03
2	55	\$22.86	\$8.25	\$6.16	\$0.00	\$37.27
3	60	\$24.94	\$8.25	\$6.72	\$0.00	\$39.91
4	65	\$27.01	\$8.25	\$7.28	\$0.00	\$42.54
5	70	\$29.09	\$8.25	\$19.39	\$0.00	\$56.73
6	75	\$31.17	\$8.25	\$19.95	\$0.00	\$59.37
7	80	\$33.25	\$8.25	\$20.51	\$0.00	\$62.01
8	90	\$37.40	\$8.25	\$21.63	\$0.00	\$67.28

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1
HOISTING ENGINEER/CRANES/GRADALLS
OPERATING ENGINEERS LOCAL 4

06/01/2020	\$49.33	\$13.00	\$15.70	\$0.00	\$78.03
12/01/2020	\$50.48	\$13.00	\$15.70	\$0.00	\$79.18
06/01/2021	\$51.58	\$13.00	\$15.70	\$0.00	\$80.28
12/01/2021	\$52.73	\$13.00	\$15.70	\$0.00	\$81.43

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$27.13	\$13.00	\$0.00	\$0.00	\$40.13
2	60	\$29.60	\$13.00	\$15.70	\$0.00	\$58.30
3	65	\$32.06	\$13.00	\$15.70	\$0.00	\$60.76
4	70	\$34.53	\$13.00	\$15.70	\$0.00	\$63.23
5	75	\$37.00	\$13.00	\$15.70	\$0.00	\$65.70
6	80	\$39.46	\$13.00	\$15.70	\$0.00	\$68.16
7	85	\$41.93	\$13.00	\$15.70	\$0.00	\$70.63
8	90	\$44.40	\$13.00	\$15.70	\$0.00	\$73.10

Effective Date - 12/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$27.76	\$13.00	\$0.00	\$0.00	\$40.76
2	60	\$30.29	\$13.00	\$15.70	\$0.00	\$58.99
3	65	\$32.81	\$13.00	\$15.70	\$0.00	\$61.51
4	70	\$35.34	\$13.00	\$15.70	\$0.00	\$64.04
5	75	\$37.86	\$13.00	\$15.70	\$0.00	\$66.56
6	80	\$40.38	\$13.00	\$15.70	\$0.00	\$69.08
7	85	\$42.91	\$13.00	\$15.70	\$0.00	\$71.61
8	90	\$45.43	\$13.00	\$15.70	\$0.00	\$74.13

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 63	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 96	07/01/2019	\$44.07	\$10.72	\$16.04	\$0.00	\$70.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 63	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) PLUMBERS LOCAL 4	03/01/2020	\$46.16	\$9.80	\$15.46	\$0.00	\$71.42
	09/01/2020	\$47.16	\$9.80	\$15.46	\$0.00	\$72.42
	03/01/2021	\$48.16	\$9.80	\$15.46	\$0.00	\$73.42
	09/01/2021	\$49.16	\$9.80	\$15.46	\$0.00	\$74.42
	03/01/2022	\$50.16	\$9.80	\$15.46	\$0.00	\$75.42
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC MECHANIC <i>PLUMBERS LOCAL 4</i>	03/01/2020	\$46.16	\$9.80	\$15.46	\$0.00	\$71.42
	09/01/2020	\$47.16	\$9.80	\$15.46	\$0.00	\$72.42
	03/01/2021	\$48.16	\$9.80	\$15.46	\$0.00	\$73.42
	09/01/2021	\$49.16	\$9.80	\$15.46	\$0.00	\$74.42
	03/01/2022	\$50.16	\$9.80	\$15.46	\$0.00	\$75.42
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.81	\$8.60	\$15.77	\$0.00	\$59.18
	12/01/2020	\$35.70	\$8.60	\$15.77	\$0.00	\$60.07
	06/01/2021	\$36.62	\$8.60	\$15.77	\$0.00	\$60.99
	12/01/2021	\$37.53	\$8.60	\$15.77	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)</i>	09/01/2019	\$43.60	\$12.80	\$16.40	\$0.00	\$72.80

Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Worcester

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.80	\$12.80	\$11.90	\$0.00	\$46.50
2	60	\$26.16	\$12.80	\$12.80	\$0.00	\$51.76
3	70	\$30.52	\$12.80	\$13.70	\$0.00	\$57.02
4	80	\$34.88	\$12.80	\$14.60	\$0.00	\$62.28

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (WORCESTER AREA)</i>	03/16/2019	\$46.36	\$8.00	\$23.50	\$0.00	\$77.86
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Apprentice - IRONWORKER - Local 7 Worcester

Effective Date - 03/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.82	\$8.00	\$23.50	\$0.00	\$59.32
2	70	\$32.45	\$8.00	\$23.50	\$0.00	\$63.95
3	75	\$34.77	\$8.00	\$23.50	\$0.00	\$66.27
4	80	\$37.09	\$8.00	\$23.50	\$0.00	\$68.59
5	85	\$39.41	\$8.00	\$23.50	\$0.00	\$70.91
6	90	\$41.72	\$8.00	\$23.50	\$0.00	\$73.22

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 2	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						

LABORER LABORERS - ZONE 2	06/01/2020	\$34.06	\$8.60	\$15.77	\$0.00	\$58.43
	12/01/2020	\$34.95	\$8.60	\$15.77	\$0.00	\$59.32
	06/01/2021	\$35.87	\$8.60	\$15.77	\$0.00	\$60.24
	12/01/2021	\$36.78	\$8.60	\$15.77	\$0.00	\$61.15

Apprentice - LABORER - Zone 2

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.44	\$8.60	\$15.77	\$0.00	\$44.81
2	70	\$23.84	\$8.60	\$15.77	\$0.00	\$48.21
3	80	\$27.25	\$8.60	\$15.77	\$0.00	\$51.62
4	90	\$30.65	\$8.60	\$15.77	\$0.00	\$55.02

Effective Date - 12/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.97	\$8.60	\$15.77	\$0.00	\$45.34
2	70	\$24.47	\$8.60	\$15.77	\$0.00	\$48.84
3	80	\$27.96	\$8.60	\$15.77	\$0.00	\$52.33
4	90	\$31.46	\$8.60	\$15.77	\$0.00	\$55.83

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER LABORERS - ZONE 2	06/01/2020	\$34.06	\$8.60	\$15.77	\$0.00	\$58.43
	12/01/2020	\$34.95	\$8.60	\$15.77	\$0.00	\$59.32
	06/01/2021	\$35.87	\$8.60	\$15.77	\$0.00	\$60.24
	12/01/2021	\$36.78	\$8.60	\$15.77	\$0.00	\$61.15

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER LABORERS - ZONE 2	06/01/2020	\$34.06	\$8.60	\$15.77	\$0.00	\$58.43
	12/01/2020	\$34.95	\$8.60	\$15.77	\$0.00	\$59.32
	06/01/2021	\$35.87	\$8.60	\$15.77	\$0.00	\$60.24
	12/01/2021	\$36.78	\$8.60	\$15.77	\$0.00	\$61.15

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS - ZONE 2	06/01/2020	\$34.15	\$8.60	\$15.83	\$0.00	\$58.58
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For apprentice rates see "Apprentice- LABORER"

LABORER: MASON TENDER LABORERS - ZONE 2	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.06	\$8.60	\$15.77	\$0.00	\$58.43
	12/01/2020	\$34.95	\$8.60	\$15.77	\$0.00	\$59.32
	06/01/2021	\$35.87	\$8.60	\$15.77	\$0.00	\$60.24
	12/01/2021	\$36.78	\$8.60	\$15.77	\$0.00	\$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.06	\$8.60	\$15.77	\$0.00	\$58.43
	12/01/2020	\$34.95	\$8.60	\$15.77	\$0.00	\$59.32
	06/01/2021	\$35.87	\$8.60	\$15.77	\$0.00	\$60.24
	12/01/2021	\$36.78	\$8.60	\$15.77	\$0.00	\$61.15
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2020	\$41.49	\$10.75	\$20.12	\$0.00	\$72.36
	08/01/2020	\$42.57	\$10.75	\$20.27	\$0.00	\$73.59
	02/01/2021	\$43.08	\$10.75	\$20.27	\$0.00	\$74.10
	08/01/2021	\$44.20	\$10.75	\$20.43	\$0.00	\$75.38
	02/01/2022	\$44.67	\$10.75	\$20.43	\$0.00	\$75.85

Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.75	\$10.75	\$20.12	\$0.00	\$51.62
2	60	\$24.89	\$10.75	\$20.12	\$0.00	\$55.76
3	70	\$29.04	\$10.75	\$20.12	\$0.00	\$59.91
4	80	\$33.19	\$10.75	\$20.12	\$0.00	\$64.06
5	90	\$37.34	\$10.75	\$20.12	\$0.00	\$68.21

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.29	\$10.75	\$20.27	\$0.00	\$52.31
2	60	\$25.54	\$10.75	\$20.27	\$0.00	\$56.56
3	70	\$29.80	\$10.75	\$20.27	\$0.00	\$60.82
4	80	\$34.06	\$10.75	\$20.27	\$0.00	\$65.08
5	90	\$38.31	\$10.75	\$20.27	\$0.00	\$69.33

Notes:

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE MASONS,TILELAYERS & TERRAZZO MECH <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2020	\$54.42	\$10.75	\$21.93	\$0.00	\$87.10
	08/01/2020	\$55.77	\$10.75	\$22.08	\$0.00	\$88.60
	02/01/2021	\$56.41	\$10.75	\$22.08	\$0.00	\$89.24
	08/01/2021	\$57.81	\$10.75	\$22.24	\$0.00	\$90.80
	02/01/2022	\$58.38	\$10.75	\$22.24	\$0.00	\$91.37

Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.21	\$10.75	\$21.93	\$0.00	\$59.89
2	60	\$32.65	\$10.75	\$21.93	\$0.00	\$65.33
3	70	\$38.09	\$10.75	\$21.93	\$0.00	\$70.77
4	80	\$43.54	\$10.75	\$21.93	\$0.00	\$76.22
5	90	\$48.98	\$10.75	\$21.93	\$0.00	\$81.66

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.89	\$10.75	\$22.08	\$0.00	\$60.72
2	60	\$33.46	\$10.75	\$22.08	\$0.00	\$66.29
3	70	\$39.04	\$10.75	\$22.08	\$0.00	\$71.87
4	80	\$44.62	\$10.75	\$22.08	\$0.00	\$77.45
5	90	\$50.19	\$10.75	\$22.08	\$0.00	\$83.02

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 2) <i>MILLWRIGHTS LOCAL 1121 - Zone 2</i>	04/01/2019	\$38.87	\$9.90	\$18.50	\$0.00	\$67.27
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - <i>MILLWRIGHT - Local 1121 Zone 2</i>						
Effective Date - 04/01/2019						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$21.38	\$9.90	\$5.31	\$0.00	\$36.59
2	65	\$25.27	\$9.90	\$15.13	\$0.00	\$50.30
3	75	\$29.15	\$9.90	\$16.10	\$0.00	\$55.15
4	85	\$33.04	\$9.90	\$17.06	\$0.00	\$60.00
<div>Notes:</div> <div>Steps are 2,000 hours</div> <div>Apprentice to Journeyworker Ratio:1:5</div>						
MORTAR MIXER	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
<i>LABORERS - ZONE 2</i>	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS)	06/01/2020	\$23.13	\$13.00	\$15.70	\$0.00	\$51.83
<i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2020	\$23.70	\$13.00	\$15.70	\$0.00	\$52.40
	06/01/2021	\$24.25	\$13.00	\$15.70	\$0.00	\$52.95
	12/01/2021	\$24.83	\$13.00	\$15.70	\$0.00	\$53.53
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS)	06/01/2020	\$27.79	\$13.00	\$15.70	\$0.00	\$56.49
<i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2020	\$28.47	\$13.00	\$15.70	\$0.00	\$57.17
	06/01/2021	\$29.11	\$13.00	\$15.70	\$0.00	\$57.81
	12/01/2021	\$29.79	\$13.00	\$15.70	\$0.00	\$58.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
<i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS)	07/01/2020	\$51.51	\$8.25	\$22.40	\$0.00	\$82.16
<i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2021	\$52.06	\$8.25	\$22.75	\$0.00	\$83.06

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - PAINTER Local 35 - BRIDGES/TANKS
Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.76	\$8.25	\$0.00	\$0.00	\$34.01
2	55	\$28.33	\$8.25	\$6.05	\$0.00	\$42.63
3	60	\$30.91	\$8.25	\$6.60	\$0.00	\$45.76
4	65	\$33.48	\$8.25	\$7.15	\$0.00	\$48.88
5	70	\$36.06	\$8.25	\$19.10	\$0.00	\$63.41
6	75	\$38.63	\$8.25	\$19.65	\$0.00	\$66.53
7	80	\$41.21	\$8.25	\$20.20	\$0.00	\$69.66
8	90	\$46.36	\$8.25	\$21.30	\$0.00	\$75.91

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$8.25	\$0.00	\$0.00	\$34.28
2	55	\$28.63	\$8.25	\$6.16	\$0.00	\$43.04
3	60	\$31.24	\$8.25	\$6.72	\$0.00	\$46.21
4	65	\$33.84	\$8.25	\$7.28	\$0.00	\$49.37
5	70	\$36.44	\$8.25	\$19.39	\$0.00	\$64.08
6	75	\$39.05	\$8.25	\$19.95	\$0.00	\$67.25
7	80	\$41.65	\$8.25	\$20.51	\$0.00	\$70.41
8	90	\$46.85	\$8.25	\$21.63	\$0.00	\$76.73

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2020	\$41.21	\$8.25	\$22.40	\$0.00	\$71.86
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	01/01/2021	\$42.96	\$8.25	\$22.75	\$0.00	\$73.96

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New
Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.61	\$8.25	\$0.00	\$0.00	\$28.86
2	55	\$22.67	\$8.25	\$6.05	\$0.00	\$36.97
3	60	\$24.73	\$8.25	\$6.60	\$0.00	\$39.58
4	65	\$26.79	\$8.25	\$7.15	\$0.00	\$42.19
5	70	\$28.85	\$8.25	\$19.10	\$0.00	\$56.20
6	75	\$30.91	\$8.25	\$19.65	\$0.00	\$58.81
7	80	\$32.97	\$8.25	\$20.20	\$0.00	\$61.42
8	90	\$37.09	\$8.25	\$21.30	\$0.00	\$66.64

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.48	\$8.25	\$0.00	\$0.00	\$29.73
2	55	\$23.63	\$8.25	\$6.16	\$0.00	\$38.04
3	60	\$25.78	\$8.25	\$6.72	\$0.00	\$40.75
4	65	\$27.92	\$8.25	\$7.28	\$0.00	\$43.45
5	70	\$30.07	\$8.25	\$19.39	\$0.00	\$57.71
6	75	\$32.22	\$8.25	\$19.95	\$0.00	\$60.42
7	80	\$34.37	\$8.25	\$20.51	\$0.00	\$63.13
8	90	\$38.66	\$8.25	\$21.63	\$0.00	\$68.54

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2020	\$40.47	\$8.25	\$22.40	\$0.00	\$71.12
PAINTERS LOCAL 35 - ZONE 2	01/01/2021	\$41.02	\$8.25	\$22.75	\$0.00	\$72.02

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint**Effective Date - 07/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.24	\$8.25	\$0.00	\$0.00	\$28.49
2	55	\$22.26	\$8.25	\$6.05	\$0.00	\$36.56
3	60	\$24.28	\$8.25	\$6.60	\$0.00	\$39.13
4	65	\$26.31	\$8.25	\$7.15	\$0.00	\$41.71
5	70	\$28.33	\$8.25	\$19.10	\$0.00	\$55.68
6	75	\$30.35	\$8.25	\$19.65	\$0.00	\$58.25
7	80	\$32.38	\$8.25	\$20.20	\$0.00	\$60.83
8	90	\$36.42	\$8.25	\$21.30	\$0.00	\$65.97

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.51	\$8.25	\$0.00	\$0.00	\$28.76
2	55	\$22.56	\$8.25	\$6.16	\$0.00	\$36.97
3	60	\$24.61	\$8.25	\$6.72	\$0.00	\$39.58
4	65	\$26.66	\$8.25	\$7.28	\$0.00	\$42.19
5	70	\$28.71	\$8.25	\$19.39	\$0.00	\$56.35
6	75	\$30.77	\$8.25	\$19.95	\$0.00	\$58.97
7	80	\$32.82	\$8.25	\$20.51	\$0.00	\$61.58
8	90	\$36.92	\$8.25	\$21.63	\$0.00	\$66.80

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)

LABORERS - ZONE 2

06/01/2020	\$34.06	\$8.60	\$15.77	\$0.00	\$58.43
12/01/2020	\$34.95	\$8.60	\$15.77	\$0.00	\$59.32
06/01/2021	\$35.87	\$8.60	\$15.77	\$0.00	\$60.24
12/01/2021	\$36.78	\$8.60	\$15.77	\$0.00	\$61.15

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) *

* If 30% or more of surfaces to be painted are new construction,

NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

07/01/2020	\$41.01	\$8.25	\$22.40	\$0.00	\$71.66
01/01/2021	\$41.56	\$8.25	\$22.75	\$0.00	\$72.56

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.51	\$8.25	\$0.00	\$0.00	\$28.76
2	55	\$22.56	\$8.25	\$6.05	\$0.00	\$36.86
3	60	\$24.61	\$8.25	\$6.60	\$0.00	\$39.46
4	65	\$26.66	\$8.25	\$7.15	\$0.00	\$42.06
5	70	\$28.71	\$8.25	\$19.10	\$0.00	\$56.06
6	75	\$30.76	\$8.25	\$19.65	\$0.00	\$58.66
7	80	\$32.81	\$8.25	\$20.20	\$0.00	\$61.26
8	90	\$36.91	\$8.25	\$21.30	\$0.00	\$66.46

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.78	\$8.25	\$0.00	\$0.00	\$29.03
2	55	\$22.86	\$8.25	\$6.16	\$0.00	\$37.27
3	60	\$24.94	\$8.25	\$6.72	\$0.00	\$39.91
4	65	\$27.01	\$8.25	\$7.28	\$0.00	\$42.54
5	70	\$29.09	\$8.25	\$19.39	\$0.00	\$56.73
6	75	\$31.17	\$8.25	\$19.95	\$0.00	\$59.37
7	80	\$33.25	\$8.25	\$20.51	\$0.00	\$62.01
8	90	\$37.40	\$8.25	\$21.63	\$0.00	\$67.28

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2020	\$39.07	\$8.25	\$22.40	\$0.00	\$69.72
PAINTERS LOCAL 35 - ZONE 2	01/01/2021	\$39.62	\$8.25	\$22.75	\$0.00	\$70.62

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT
Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.54	\$8.25	\$0.00	\$0.00	\$27.79
2	55	\$21.49	\$8.25	\$6.05	\$0.00	\$35.79
3	60	\$23.44	\$8.25	\$6.60	\$0.00	\$38.29
4	65	\$25.40	\$8.25	\$7.15	\$0.00	\$40.80
5	70	\$27.35	\$8.25	\$19.10	\$0.00	\$54.70
6	75	\$29.30	\$8.25	\$19.65	\$0.00	\$57.20
7	80	\$31.26	\$8.25	\$20.20	\$0.00	\$59.71
8	90	\$35.16	\$8.25	\$21.30	\$0.00	\$64.71

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.81	\$8.25	\$0.00	\$0.00	\$28.06
2	55	\$21.79	\$8.25	\$6.16	\$0.00	\$36.20
3	60	\$23.77	\$8.25	\$6.72	\$0.00	\$38.74
4	65	\$25.75	\$8.25	\$7.28	\$0.00	\$41.28
5	70	\$27.73	\$8.25	\$19.39	\$0.00	\$55.37
6	75	\$29.72	\$8.25	\$19.95	\$0.00	\$57.92
7	80	\$31.70	\$8.25	\$20.51	\$0.00	\$60.46
8	90	\$35.66	\$8.25	\$21.63	\$0.00	\$65.54

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1
PANEL & PICKUP TRUCKS DRIVER
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B

06/01/2020	\$34.98	\$12.41	\$13.72	\$0.00	\$61.11
08/01/2020	\$34.98	\$12.91	\$13.72	\$0.00	\$61.61
12/01/2020	\$34.98	\$12.91	\$14.82	\$0.00	\$62.71
06/01/2021	\$35.78	\$12.91	\$14.82	\$0.00	\$63.51
08/01/2021	\$35.78	\$13.41	\$14.82	\$0.00	\$64.01
12/01/2021	\$35.78	\$13.41	\$16.01	\$0.00	\$65.20

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)
PILE DRIVER LOCAL 56 (ZONE 2)

For apprentice rates see "Apprentice- PILE DRIVER"

08/01/2019	\$44.61	\$9.90	\$21.15	\$0.00	\$75.66
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PILE DRIVER
PILE DRIVER LOCAL 56 (ZONE 2)

08/01/2019	\$44.61	\$9.90	\$21.15	\$0.00	\$75.66
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - PILE DRIVER - Local 56 Zone 2

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Notes: Apprentice wages shall be no less than the following Steps;
(Same as set in Zone 1)
1\$54.34/2\$58.99/3\$63.65/4\$65.98/5\$68.31/6\$68.31/7\$72.96/8\$72.96

Apprentice to Journeyworker Ratio:1:5

PIPELAYER LABORERS - ZONE 2	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40

For apprentice rates see "Apprentice- LABORER"

PLUMBER & PIPEFITTER PLUMBERS LOCAL 4	03/01/2020	\$46.16	\$9.80	\$15.46	\$0.00	\$71.42
	09/01/2020	\$47.16	\$9.80	\$15.46	\$0.00	\$72.42
	03/01/2021	\$48.16	\$9.80	\$15.46	\$0.00	\$73.42
	09/01/2021	\$49.16	\$9.80	\$15.46	\$0.00	\$74.42
	03/01/2022	\$50.16	\$9.80	\$15.46	\$0.00	\$75.42

Apprentice - PLUMBER/PIPEFITTER - Local 4

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.46	\$9.80	\$0.00	\$0.00	\$28.26
2	50	\$23.08	\$9.80	\$0.00	\$0.00	\$32.88
3	60	\$27.70	\$9.80	\$0.00	\$0.00	\$37.50
4	70	\$32.31	\$9.80	\$5.75	\$0.00	\$47.86
5	80	\$36.93	\$9.80	\$5.75	\$0.00	\$52.48

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.86	\$9.80	\$0.00	\$0.00	\$28.66
2	50	\$23.58	\$9.80	\$0.00	\$0.00	\$33.38
3	60	\$28.30	\$9.80	\$0.00	\$0.00	\$38.10
4	70	\$33.01	\$9.80	\$5.75	\$0.00	\$48.56
5	80	\$37.73	\$9.80	\$5.75	\$0.00	\$53.28

Notes:
Steps - 2000 hrs; Step 4 w/lic 75%, Step 5 w/lic 85%
Step 4 w/lic \$50.17, Step 5 w/lic \$54.79

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC CONTROLS (TEMP.) <i>PLUMBERS LOCAL 4</i>	03/01/2020	\$46.16	\$9.80	\$15.46	\$0.00	\$71.42
	09/01/2020	\$47.16	\$9.80	\$15.46	\$0.00	\$72.42
	03/01/2021	\$48.16	\$9.80	\$15.46	\$0.00	\$73.42
	09/01/2021	\$49.16	\$9.80	\$15.46	\$0.00	\$74.42
	03/01/2022	\$50.16	\$9.80	\$15.46	\$0.00	\$75.42
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	06/01/2020	\$35.06	\$8.60	\$15.77	\$0.00	\$59.43
	12/01/2020	\$35.95	\$8.60	\$15.77	\$0.00	\$60.32
	06/01/2021	\$36.87	\$8.60	\$15.77	\$0.00	\$61.24
	12/01/2021	\$37.78	\$8.60	\$15.77	\$0.00	\$62.15
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$49.33	\$13.00	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.48	\$13.00	\$15.70	\$0.00	\$79.18
	06/01/2021	\$51.58	\$13.00	\$15.70	\$0.00	\$80.28
	12/01/2021	\$52.73	\$13.00	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$49.33	\$13.00	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.48	\$13.00	\$15.70	\$0.00	\$79.18
	06/01/2021	\$51.58	\$13.00	\$15.70	\$0.00	\$80.28
	12/01/2021	\$52.73	\$13.00	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$32.72	\$13.00	\$15.70	\$0.00	\$61.42
	12/01/2020	\$33.50	\$13.00	\$15.70	\$0.00	\$62.20
	06/01/2021	\$34.25	\$13.00	\$15.70	\$0.00	\$62.95
	12/01/2021	\$35.04	\$13.00	\$15.70	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 170 - Dauphinis (Bellingham)</i>	01/01/2020	\$24.00	\$11.01	\$2.50	\$0.00	\$37.51
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROOFER (Inc.Roofing Waterproofing &Roofing Dampproofg) <i>ROOFERS LOCAL 33</i>	03/01/2020	\$45.67	\$11.50	\$15.90	\$0.00	\$73.07
	08/01/2020	\$47.10	\$11.50	\$15.90	\$0.00	\$74.50
	02/01/2021	\$48.53	\$11.50	\$15.90	\$0.00	\$75.93
	08/01/2021	\$49.96	\$11.50	\$15.90	\$0.00	\$77.36
	02/01/2022	\$51.39	\$11.50	\$15.90	\$0.00	\$78.79

Apprentice - ROOFER - Local 33

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.84	\$11.50	\$3.69	\$0.00	\$38.03
2	60	\$27.40	\$11.50	\$15.90	\$0.00	\$54.80
3	65	\$29.69	\$11.50	\$15.90	\$0.00	\$57.09
4	75	\$34.25	\$11.50	\$15.90	\$0.00	\$61.65
5	85	\$38.82	\$11.50	\$15.90	\$0.00	\$66.22

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.55	\$11.50	\$3.69	\$0.00	\$38.74
2	60	\$28.26	\$11.50	\$15.90	\$0.00	\$55.66
3	65	\$30.62	\$11.50	\$15.90	\$0.00	\$58.02
4	75	\$35.33	\$11.50	\$15.90	\$0.00	\$62.73
5	85	\$40.04	\$11.50	\$15.90	\$0.00	\$67.44

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
(Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	03/01/2020	\$45.92	\$11.50	\$15.90	\$0.00	\$73.32
	08/01/2020	\$47.35	\$11.50	\$15.90	\$0.00	\$74.75
	02/01/2021	\$48.78	\$11.50	\$15.90	\$0.00	\$76.18
	08/01/2021	\$50.21	\$11.50	\$15.90	\$0.00	\$77.61
	02/01/2022	\$51.64	\$11.50	\$15.90	\$0.00	\$79.04

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 63</i>	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62
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Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - SHEET METAL WORKER - Local 63
Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$16.65	\$6.21	\$4.67	\$0.00	\$27.53
2	50	\$18.50	\$6.55	\$5.19	\$0.00	\$30.24
3	55	\$20.34	\$6.88	\$9.33	\$1.08	\$37.63
4	60	\$22.19	\$7.22	\$9.33	\$1.14	\$39.88
5	65	\$24.04	\$7.55	\$9.33	\$1.20	\$42.12
6	70	\$25.89	\$7.88	\$9.33	\$1.27	\$44.37
7	75	\$27.74	\$8.22	\$9.33	\$1.33	\$46.62
8	80	\$29.59	\$9.30	\$15.18	\$1.59	\$55.66
9	85	\$31.44	\$9.64	\$15.18	\$1.66	\$57.92
10	90	\$33.29	\$9.98	\$15.18	\$1.72	\$60.17

Notes:
Apprentice to Journeyworker Ratio:1:3

SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2020	\$35.44	\$12.41	\$13.72	\$0.00	\$61.57
	08/01/2020	\$35.44	\$12.91	\$13.72	\$0.00	\$62.07
	12/01/2020	\$35.44	\$12.91	\$14.82	\$0.00	\$63.17
	06/01/2021	\$36.24	\$12.91	\$14.82	\$0.00	\$63.97
	08/01/2021	\$36.24	\$13.41	\$14.82	\$0.00	\$64.47
	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2020	\$35.73	\$12.41	\$13.72	\$0.00	\$61.86
	08/01/2020	\$35.73	\$12.91	\$13.72	\$0.00	\$62.36
	12/01/2020	\$35.73	\$12.91	\$14.82	\$0.00	\$63.46
	06/01/2021	\$36.53	\$12.91	\$14.82	\$0.00	\$64.26
	08/01/2021	\$36.53	\$13.41	\$14.82	\$0.00	\$64.76
	12/01/2021	\$36.53	\$13.41	\$16.01	\$0.00	\$65.95
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2020	\$60.82	\$9.68	\$20.55	\$0.00	\$91.05
	10/01/2020	\$62.32	\$9.68	\$20.55	\$0.00	\$92.55
	03/01/2021	\$63.82	\$9.68	\$20.55	\$0.00	\$94.05

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1
Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.29	\$9.68	\$11.61	\$0.00	\$42.58
2	40	\$24.33	\$9.68	\$12.30	\$0.00	\$46.31
3	45	\$27.37	\$9.68	\$12.99	\$0.00	\$50.04
4	50	\$30.41	\$9.68	\$13.73	\$0.00	\$53.82
5	55	\$33.45	\$9.68	\$14.36	\$0.00	\$57.49
6	60	\$36.49	\$9.68	\$15.05	\$0.00	\$61.22
7	65	\$39.53	\$9.68	\$15.74	\$0.00	\$64.95
8	70	\$42.57	\$9.68	\$16.43	\$0.00	\$68.68
9	75	\$45.62	\$9.68	\$17.11	\$0.00	\$72.41
10	80	\$48.66	\$9.68	\$17.80	\$0.00	\$76.14

Effective Date - 10/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.81	\$9.68	\$11.61	\$0.00	\$43.10
2	40	\$24.93	\$9.68	\$12.30	\$0.00	\$46.91
3	45	\$28.04	\$9.68	\$12.99	\$0.00	\$50.71
4	50	\$31.16	\$9.68	\$13.73	\$0.00	\$54.57
5	55	\$34.28	\$9.68	\$14.36	\$0.00	\$58.32
6	60	\$37.39	\$9.68	\$15.05	\$0.00	\$62.12
7	65	\$40.51	\$9.68	\$15.74	\$0.00	\$65.93
8	70	\$43.62	\$9.68	\$16.43	\$0.00	\$69.73
9	75	\$46.74	\$9.68	\$17.11	\$0.00	\$73.53
10	80	\$49.86	\$9.68	\$17.80	\$0.00	\$77.34

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR OPERATING ENGINEERS LOCAL 4	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN OPERATING ENGINEERS LOCAL 4	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2020	\$53.34	\$10.75	\$21.94	\$0.00	\$86.03
	08/01/2020	\$54.69	\$10.75	\$22.09	\$0.00	\$87.53
	02/01/2021	\$55.33	\$10.75	\$22.09	\$0.00	\$88.17
	08/01/2021	\$56.73	\$10.75	\$22.25	\$0.00	\$89.73
	02/01/2022	\$57.32	\$10.75	\$22.25	\$0.00	\$90.32

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.67	\$10.75	\$21.94	\$0.00	\$59.36
2	60	\$32.00	\$10.75	\$21.94	\$0.00	\$64.69
3	70	\$37.34	\$10.75	\$21.94	\$0.00	\$70.03
4	80	\$42.67	\$10.75	\$21.94	\$0.00	\$75.36
5	90	\$48.01	\$10.75	\$21.94	\$0.00	\$80.70

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.35	\$10.75	\$22.09	\$0.00	\$60.19
2	60	\$32.81	\$10.75	\$22.09	\$0.00	\$65.65
3	70	\$38.28	\$10.75	\$22.09	\$0.00	\$71.12
4	80	\$43.75	\$10.75	\$22.09	\$0.00	\$76.59
5	90	\$49.22	\$10.75	\$22.09	\$0.00	\$82.06

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2020	\$40.55	\$8.60	\$17.24	\$0.00	\$66.39
	12/01/2020	\$41.53	\$8.60	\$17.24	\$0.00	\$67.37
	06/01/2021	\$42.55	\$8.60	\$17.24	\$0.00	\$68.39
	12/01/2021	\$43.56	\$8.60	\$17.24	\$0.00	\$69.40

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2020	\$39.27	\$8.60	\$17.24	\$0.00	\$65.11
	12/01/2020	\$40.25	\$8.60	\$17.24	\$0.00	\$66.09
	06/01/2021	\$41.27	\$8.60	\$17.24	\$0.00	\$67.11
	12/01/2021	\$42.28	\$8.60	\$17.24	\$0.00	\$68.12

For apprentice rates see "Apprentice- LABORER"

TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2020	\$39.15	\$8.60	\$17.24	\$0.00	\$64.99
	12/01/2020	\$40.13	\$8.60	\$17.24	\$0.00	\$65.97
	06/01/2021	\$41.15	\$8.60	\$17.24	\$0.00	\$66.99
	12/01/2021	\$42.16	\$8.60	\$17.24	\$0.00	\$68.00

For apprentice rates see "Apprentice- LABORER"

TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2020	\$48.81	\$13.00	\$15.70	\$0.00	\$77.51
	12/01/2020	\$49.95	\$13.00	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.04	\$13.00	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.18	\$13.00	\$15.70	\$0.00	\$80.88

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2020	\$36.02	\$12.41	\$13.72	\$0.00	\$62.15
	08/01/2020	\$36.02	\$12.91	\$13.72	\$0.00	\$62.65
	12/01/2020	\$36.02	\$12.91	\$14.82	\$0.00	\$63.75
	06/01/2021	\$36.82	\$12.91	\$14.82	\$0.00	\$64.55
	08/01/2021	\$36.82	\$13.41	\$14.82	\$0.00	\$65.05
	12/01/2021	\$36.82	\$13.41	\$16.01	\$0.00	\$66.24
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2020	\$51.38	\$8.60	\$17.69	\$0.00	\$77.67
	12/01/2020	\$52.36	\$8.60	\$17.69	\$0.00	\$78.65
	06/01/2021	\$53.38	\$8.60	\$17.69	\$0.00	\$79.67
	12/01/2021	\$54.39	\$8.60	\$17.69	\$0.00	\$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2020	\$53.38	\$8.60	\$17.69	\$0.00	\$79.67
	12/01/2020	\$54.36	\$8.60	\$17.69	\$0.00	\$80.65
	06/01/2021	\$55.38	\$8.60	\$17.69	\$0.00	\$81.67
	12/01/2021	\$56.39	\$8.60	\$17.69	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2020	\$43.45	\$8.60	\$17.69	\$0.00	\$69.74
	12/01/2020	\$44.43	\$8.60	\$17.69	\$0.00	\$70.72
	06/01/2021	\$45.45	\$8.60	\$17.69	\$0.00	\$71.74
	12/01/2021	\$46.46	\$8.60	\$17.69	\$0.00	\$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2020	\$45.45	\$8.60	\$17.69	\$0.00	\$71.74
	12/01/2020	\$46.43	\$8.60	\$17.69	\$0.00	\$72.72
	06/01/2021	\$47.45	\$8.60	\$17.69	\$0.00	\$73.74
	12/01/2021	\$48.46	\$8.60	\$17.69	\$0.00	\$74.75
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2020	\$35.44	\$12.41	\$13.72	\$0.00	\$61.57
	08/01/2020	\$35.44	\$12.91	\$13.72	\$0.00	\$62.07
	12/01/2020	\$35.44	\$12.91	\$14.82	\$0.00	\$63.17
	06/01/2021	\$36.24	\$12.91	\$14.82	\$0.00	\$63.97
	08/01/2021	\$36.24	\$13.41	\$14.82	\$0.00	\$64.47
	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
VOICE-DATA-VIDEO TECHNICIAN <i>ELECTRICIANS LOCAL 96</i>	07/01/2019	\$30.10	\$10.57	\$14.15	\$0.00	\$54.82

Classification		Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - VOICE-DATA-VIDEO TECHNICIAN - Local 96							
Effective Date - 07/01/2019							
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$15.05	\$10.57	\$3.83	\$0.00	\$29.45	
2	55	\$16.56	\$10.57	\$3.88	\$0.00	\$31.01	
3	60	\$18.06	\$10.57	\$13.79	\$0.00	\$42.42	
4	65	\$19.57	\$10.57	\$13.84	\$0.00	\$43.98	
5	70	\$21.07	\$10.57	\$13.88	\$0.00	\$45.52	
6	75	\$22.58	\$10.57	\$13.93	\$0.00	\$47.08	
7	80	\$24.08	\$10.57	\$13.97	\$0.00	\$48.62	
8	85	\$25.59	\$10.57	\$14.02	\$0.00	\$50.18	

Notes:

Apprentice to Journeyworker Ratio:1:1

WAGON DRILL OPERATOR	06/01/2020	\$34.31	\$8.60	\$15.77	\$0.00	\$58.68
LABORERS - ZONE 2	12/01/2020	\$35.20	\$8.60	\$15.77	\$0.00	\$59.57
	06/01/2021	\$36.12	\$8.60	\$15.77	\$0.00	\$60.49
	12/01/2021	\$37.03	\$8.60	\$15.77	\$0.00	\$61.40

For apprentice rates see "Apprentice- LABORER"

WASTE WATER PUMP OPERATOR	06/01/2020	\$49.33	\$13.00	\$15.70	\$0.00	\$78.03
OPERATING ENGINEERS LOCAL 4	12/01/2020	\$50.48	\$13.00	\$15.70	\$0.00	\$79.18
	06/01/2021	\$51.58	\$13.00	\$15.70	\$0.00	\$80.28
	12/01/2021	\$52.73	\$13.00	\$15.70	\$0.00	\$81.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

WATER METER INSTALLER	03/01/2020	\$46.16	\$9.80	\$15.46	\$0.00	\$71.42
PLUMBERS LOCAL 4	09/01/2020	\$47.16	\$9.80	\$15.46	\$0.00	\$72.42
	03/01/2021	\$48.16	\$9.80	\$15.46	\$0.00	\$73.42
	09/01/2021	\$49.16	\$9.80	\$15.46	\$0.00	\$74.42
	03/01/2022	\$50.16	\$9.80	\$15.46	\$0.00	\$75.42

For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"

Outside Electrical - East

CABLE TECHNICIAN (Power Zone)	09/01/2019	\$28.83	\$8.75	\$1.86	\$0.00	\$39.44
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	08/30/2020	\$29.67	\$9.25	\$1.89	\$0.00	\$40.81

For apprentice rates see "Apprentice- LINEMAN"

CABLEMAN (Underground Ducts & Cables)	09/01/2019	\$40.84	\$8.75	\$10.02	\$0.00	\$59.61
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	08/30/2020	\$42.03	\$9.25	\$10.27	\$0.00	\$61.55

For apprentice rates see "Apprentice- LINEMAN"

DRIVER / GROUNDMAN CDL	09/01/2019	\$33.64	\$8.75	\$9.86	\$0.00	\$52.25
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	08/30/2020	\$34.62	\$9.25	\$10.07	\$0.00	\$53.94

For apprentice rates see "Apprentice- LINEMAN"

DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs)	09/01/2019	\$26.43	\$8.75	\$1.79	\$0.00	\$36.97
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27

For apprentice rates see "Apprentice- LINEMAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$40.84	\$8.75	\$14.10	\$0.00	\$63.69
	08/30/2020	\$42.03	\$9.25	\$14.35	\$0.00	\$65.63
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$36.04	\$8.75	\$10.65	\$0.00	\$55.44
	08/30/2020	\$37.09	\$9.25	\$10.87	\$0.00	\$57.21
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$21.62	\$8.75	\$1.65	\$0.00	\$32.02
	08/30/2020	\$22.25	\$9.25	\$1.67	\$0.00	\$33.17
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$26.43	\$8.75	\$1.79	\$0.00	\$36.97
	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$48.05	\$8.75	\$17.19	\$0.00	\$73.99
	08/30/2020	\$49.45	\$9.25	\$17.48	\$0.00	\$76.18

Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$28.83	\$8.75	\$3.36	\$0.00	\$40.94
2	65	\$31.23	\$8.75	\$3.44	\$0.00	\$43.42
3	70	\$33.64	\$8.75	\$3.51	\$0.00	\$45.90
4	75	\$36.04	\$8.75	\$5.08	\$0.00	\$49.87
5	80	\$38.44	\$8.75	\$5.15	\$0.00	\$52.34
6	85	\$40.84	\$8.75	\$5.23	\$0.00	\$54.82
7	90	\$43.25	\$8.75	\$7.30	\$0.00	\$59.30

Effective Date - 08/30/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$29.67	\$9.25	\$3.39	\$0.00	\$42.31
2	65	\$32.14	\$9.25	\$3.46	\$0.00	\$44.85
3	70	\$34.62	\$9.25	\$3.54	\$0.00	\$47.41
4	75	\$37.09	\$9.25	\$5.11	\$0.00	\$51.45
5	80	\$39.56	\$9.25	\$5.19	\$0.00	\$54.00
6	85	\$42.03	\$9.25	\$5.26	\$0.00	\$56.54
7	90	\$44.51	\$9.25	\$7.34	\$0.00	\$61.10

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$30.73	\$4.70	\$3.17	\$0.00	\$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Additional Apprentices Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

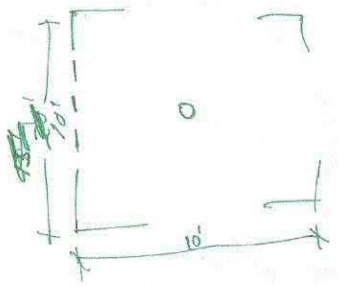
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

APPENDIX B – PAVEMENT CORES AND LOCATION MAP



C-8

C-10

C-1

C-9

C-2

arbitrarily driveway

C-3

Clinton, MA - High Street

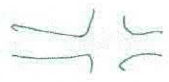
C-6

C-4

within the
large
block area

C-5

C-7



Core ID	Penetration	Sample method	Description
C-1	4-1/2"	Cored	Asphalt Top Coat
	5-3/4"	Cored	Concrete
	10-1/4" - 22-1/4"	3" sampler	Brown medium sand, some fine sand and coarse gravel, little medium to fine gravel
C-2	2-1/2"	Cored	Asphalt Top Coat
	2-1/2" - 14-1/2"	3" sampler	Dark Brown medium to coarse gravel, some fine to med sand, little silt
C-3	5-1/4"	Cored	Asphalt Top Coat
	4-1/4"	Cored	Concrete, Top 2" of concrete very weathered / deteriorated
		3" sampler	Dark Brown fine sand, some medium sand, trace fine gravel, little coarse gravel
C-4	1"	Cored	Asphalt Top Coat
	2-1/2"	Cored	Asphalt Base Coat
	3-1/2" - 15-1/2"	3" sampler	Dark Brown fine sand, some medium sand, trace fine gravel, little coarse gravel
C-5	5-1/2"	Cored	Asphalt Top Coat
	5-1/4"	Cored	Concrete, very weathered / deteriorated
	10-3/4" - 22-3/4"	3" sampler	Dark Brown fine sand, some medium sand, trace fine gravel
C-6	4-3/4"	Cored	Asphalt Top Coat
	5"	Cored	Asphalt Base Coat
	9-3/4" - 21-3/4"	3" sampler	Dark Brown medium to coarse gravel, some fine to med sand, little silt
C-7	5-1/4"	Cored	Asphalt Top Coat
	5-1/2"	Cored	Concrete
	10-3/4" - 22-3/4"	3" sampler	Dark Brown fine sand, some medium sand, little fine to medium gravel
C-8	1-1/4"	Cored	Asphalt Top Coat
	2-1/2"	Cored	Asphalt Base Coat
	3-3/4" - 15-3/4"	3" sampler	Dark Brown fine sand, some medium sand, trace fine gravel, little coarse gravel
C-9	3-1/2"	Cored	Asphalt Top Coat
	5-1/2"	Cored	Asphalt Base Coat
	9" - 21"	3" sampler	Gray med to coarse gravel, some fine gravel, Little fine to med sand
C-10	4-3/4"	Cored	Asphalt Top Coat
	4-3/4" - 16-3/4"	3" sampler	Brown silty fine sand, some very coarse gravel, little medium sand and medium gravel

APPENDIX C – EXISTING LIGHTING SYSTEM ELECTRICAL PLAN

APPENDIX D – SIDEWALK VAULT PHOTOGRAPHS

Sidewalk Vault at Santander Bank



Photo 1: Near West End Looking West. Concrete Beam on Left.

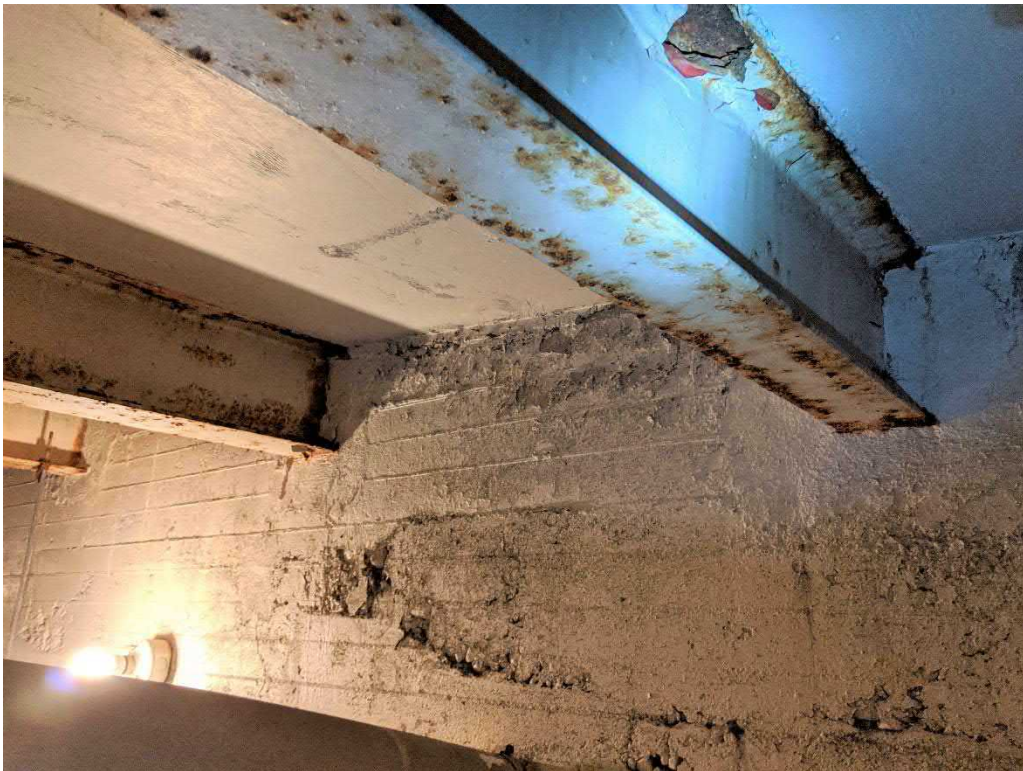


Photo 2: Looking South at Concrete Beam



Photo 3: Looking East Along Length of Vault. Concrete Beam on Right.



Photo 4: Looking West near West End of Vault. Concrete Beam on Left.



Photo 5: Looking South at Concrete Beam near West End.

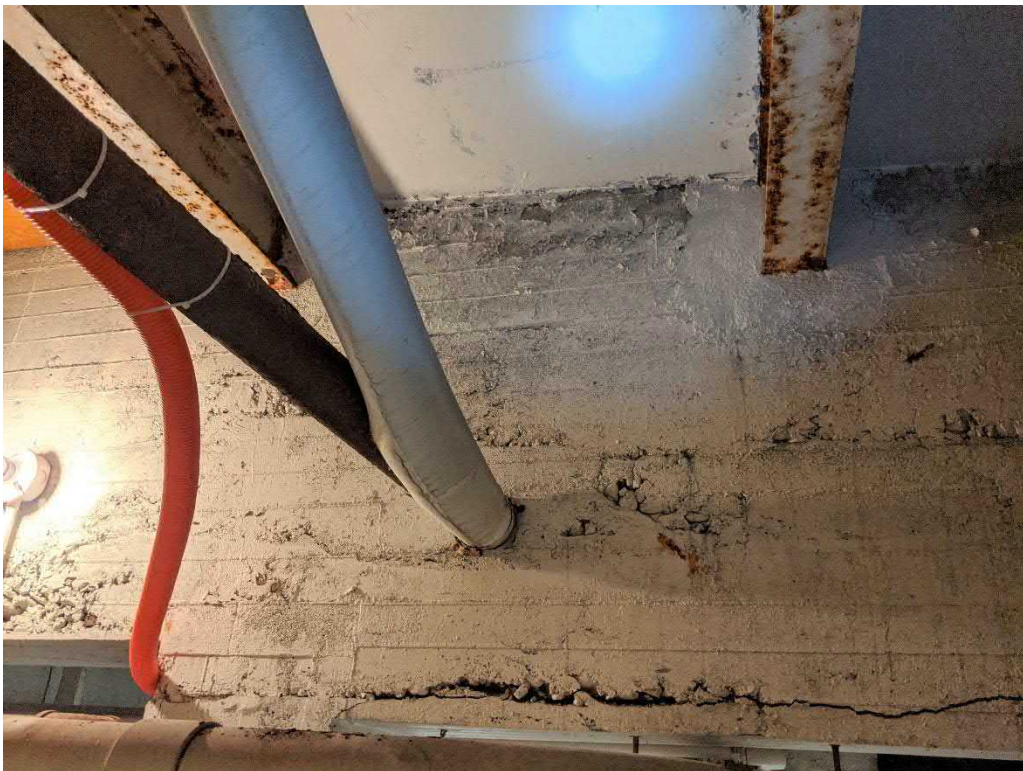


Photo 6: .Looking South at Penetrations through Concrete Beam near Midspan.



Photo 7: Looking East towards East End of Vault. Concrete Beam on Right.

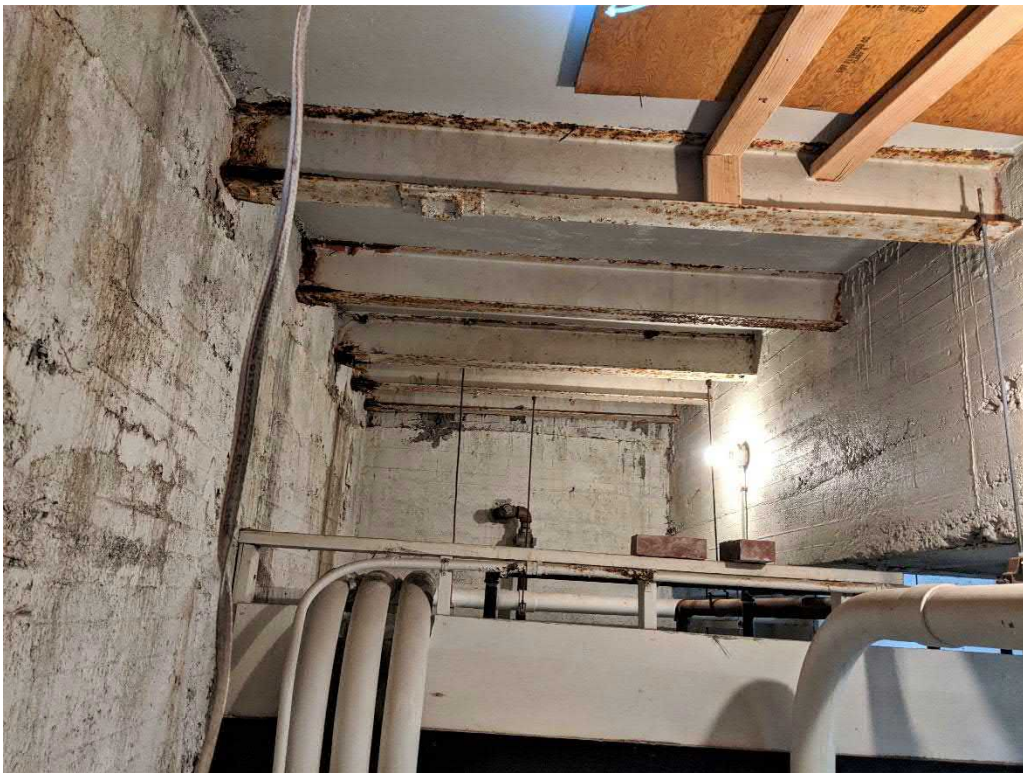


Photo 8: Looking East towards East End of Vault. Concrete Beam on Right.



Photo 9: Utility Penetrations through North Foundation Wall near Vault Center.



Photo 10: Looking West toward West End of Vault. Concrete Beam on Left.



Photo 11: Looking North at North Foundation Wall at East End of Vault. Concrete Beam Frames Left to Right across Middle of Photo. Vault is Beyond Beam..

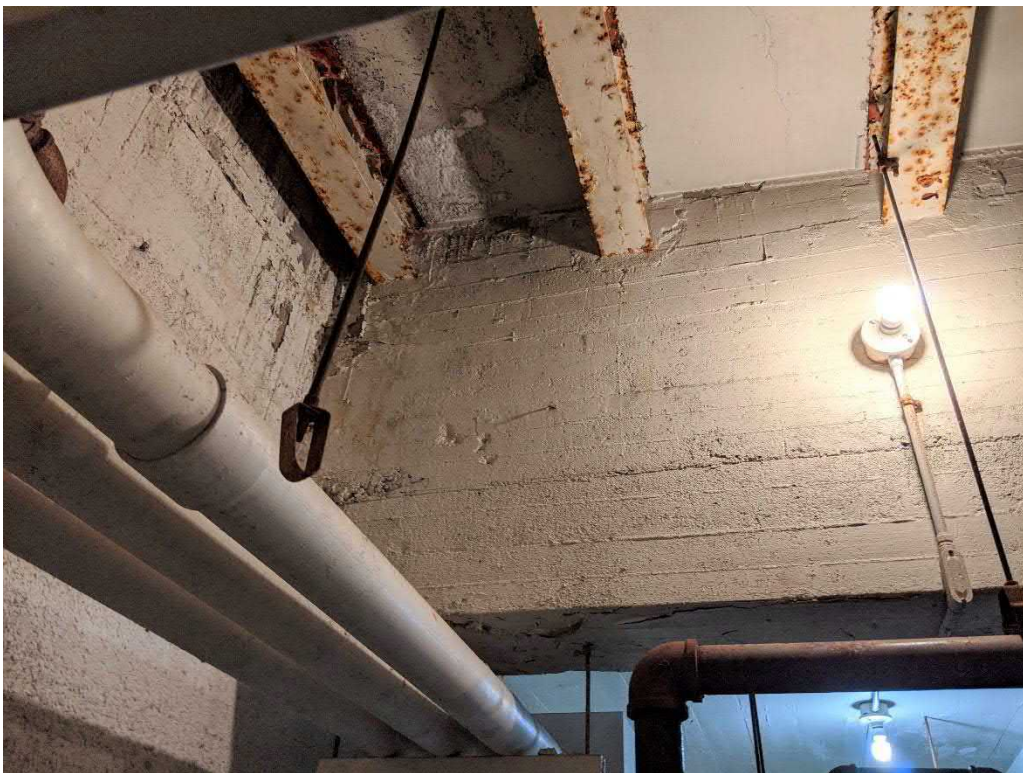


Photo 12: Looking South at Face of Concrete Beam at East End of Vault.



Photo 13: Looking North at North Foundation Wall at East End of Vault.

APPENDIX E – RAM REPORT – 329 HIGH STREET

Parker Environmental Corporation
Creative Solutions for a Complicated Environment

August 26, 2019

Massachusetts Department of Environmental Protection
Central Regional Office
8 New Bond Street
Worcester, MA 01606
Electronic submittal

RE: RTN 2-0020352
329 High Street
Clinton, MA

To Whom It May Concern:

On behalf of the Town of Clinton, Parker Environmental Corporation, (PEC), has prepared this Release Abatement Measure (RAM) Completion Report, for the above referenced Site.

By copy of this letter the Chief Municipal Officer and Board of Health of Clinton are notified of the availability this report at the Central Regional Office of the Massachusetts Department of Environmental Protection in Worcester, MA

If you have any questions or require additional information please feel free to contact Mr. Phil Duffy, of The Town of Clinton at 978-365-4113 or the undersigned.



Scott Parker, L.S.P
Licensed Site Professional

Cc: Mr. Phil Duffy Town of Clinton, 242 Church Street, Clinton, MA 01564
Cc: cover letter only
Clinton Health Department, 242 church Street, Clinton, MA 01564
Michael Ward, Town Administrator, 242 Church Street, Clinton, MA 01564

TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION.....	1
2.0 SITE LOCATION/CONTACT INFORMATION.....	1
2.1 Site Location.....	1
2.2 Potentially Responsible Party (PRP).....	1
2.3 Licensed Site Professional (LSP)-of-Record.....	1
3.0 DESCRIPTION OF RELEASEs.....	2
4.0 DESCRIPTION OF SITE CONDITIONS & SURROUNDING RECEPTORS ..	2
5.0 SUMMARY OF ASSESSMENT ACTIVITIES.....	3
5.1 Summary of Soil Assessment	3
5.2 Summary of Groundwater Sampling	3
6.0 OBJECTIVES OF THE RAM.....	3
6.1 Soil Excavation Activities	3
6.2 Confirmatory Soil Sampling	4
7.0 MANAGEMENT OF REMEDIATION WASTE.....	4
7.1 Soil Management.....	4
7.2 Dewatering Management.....	4
8.0 RAM COMPLETION	4

APPENDICES

Appendix A - Figures

Figure 1 – Locus Plan

Figure 2 – Site Plan

Appendix B - Tables

Appendix C - Laboratory Analytical Reports

Appendix D - Boring Logs

Appendix E - Disposal Documentation

1.0 INTRODUCTION

On behalf of the Town of Clinton (Clinton), Parker Environmental Corporation (PEC), has prepared this Release Abatement Measure (RAM) Completion Report for the disposal site located at 329 High Street in Clinton, Massachusetts (hereinafter referred to as “the Site”). The objective of the RAM was to perform additional assessment activities as well as remove a volume of soil from the property to aid in facilitating potential sale of the property (See Figures included in Appendix A). This report is intended to fulfill the requirements of a RAM Completion Report, as outlined in 310 Code of Massachusetts Regulations (CMR) 40.04440, and specifically to address the, excavation and off-site disposal of Site soil identified to contain petroleum hydrocarbons in excess of MCP Method 1 Risk Standards .

2.0 SITE LOCATION/CONTACT INFORMATION

2.1 Site Location

329 High Street
Clinton, MA 01510

Latitude (North): 42° 25' 15'' 42.420838
Longitude (West): - 71° 41' 02'' 71.683939
Universal Transverse Mercator (UTM): Zone 19
UTM X (Meters): 279186
UTM Y (Meters): 469993
Elevation: 320 ft. above sea level

2.2 Potentially Responsible Party (PRP)

Mr. Phil Duffy
Town of Clinton Economic Development Director
242 Church Street
Clinton, MA 01564
978-365-4113

2.3 Licensed Site Professional (LSP)-of-Record

Mr. Scott K. Parker, LSP (#9969)
Parker Environmental Corporation
97 Walnut Street
Clinton, MA 01510
(978) 273-4263

3.0 DESCRIPTION OF RELEASES

Following site assessment activities performed by TRC Environmental Corporation in 2017 and 2018, several release conditions were identified at the property. The presence of petroleum and volatile organic compounds in soil, groundwater and indoor air are attributed to the former use of the property as a retail gasoline station and repair facility.

4.0 DESCRIPTION OF SITE CONDITIONS & SURROUNDING RECEPTORS

The Site is currently an inactive former auto repair facility and retail gasoline station. The property was taken by the Town of Clinton for tax title in 2013. Site assessment activities were performed in 2017 and 2018 for the Town of Clinton (the "Client") on behalf of Montachusett Regional Planning Commission (MRPC) under MRPC's Brownfields Assessment Grant Program funded by the United States Environmental Protection Agency (EPA).

Historical information indicate the Site was a former gasoline station between c.1929 to c.1980s, which historically contained up to five underground storage tanks (USTs). According to the Town of Clinton Fire Department, a permit was filed to remove one UST in 1986. No additional information pertaining to the presence or absence of a release and location, size, contents, and integrity of the UST(s) was identified. The potential exists for historical USTs to remain on Site and contamination to be present in the subsurface from the former use of the Site as a gasoline service station.

The Site is located at 329 High Street in Clinton, Worcester County, Massachusetts in a mixed commercial/residential area. The Site is approximately 5,029-square feet in size and consists of one approximately 1,500-square foot vacant building surrounded by paved areas. The Site is connected to public water and sewer.

The Site is listed by the Town of Clinton tax assessor as Block 4 and Lot 1462 and zoned as business retail. The Site is currently vacant, foreclosed on by the Town of Clinton in 2013, with no current use.

5.0 SUMMARY OF ASSESSMENT ACTIVITIES

5.1 Summary of Soil Assessment

In order to characterize soil for off-site disposal as well as enhance the overall data set to better quantify overall costs associated with achieving a permanent solution at the property, the Town of Clinton contracted PEC to perform a series of soil borings across the site. Locations of the borings are shown on Figure 2 included in Appendix A. Soil samples collected from these soil borings were submitted for laboratory analysis. Table 1 included in Appendix B summarizes the results of these analyses. Appendix C includes a copy of the laboratory report. Boring logs are included in Appendix D.

5.2 Summary of Groundwater Sampling

As part of the additional assessment of Site conditions, PEC collected a groundwater sample from well MW-2 in order to confirm the trend of VPH constituents identified in previous groundwater sampling events performed on that well. The results of the analysis are summarized in Table 3 include in Appendix B. A copy of the laboratory report is included in Appendix C.

6.0 OBJECTIVES OF THE RAM

6.1 Soil Excavation Activities

The objective of the RAM was as follows:

- Remove soil contaminated with petroleum hydrocarbons from the southeast corner of the property in order to facilitate submittal of a Permanent Solution Statement without the need to implement an Activity and Use Limitation as well as improving Site conditions for potential sale of the property by the Town of Clinton;

From June 27-28, 2019, PEC oversaw the excavation of soil from the south end of the property in an effort to remove material in the vicinity of a sample collected during the TRC assessment (TP-6) and from the sample collected from boring B-9 installed by PEC as part of this assessment activity. These samples indicated the presence of petroleum constituents in excess of the Method 1 Risk Standard. During this excavation it was observed that a layer of urban fill was present on the top two feet of the area which included cinders, slag, ash etc... Beneath this, a layer of naturally deposited fine sand and silt was present. After advancing the excavation to a depth of approximately 4-5 feet below grade and observing no noticeable petroleum odors, the excavation was stopped and three post-excavation samples were collected.

A second area was then excavated approximately 15 feet to the west and closer to High Street. In this excavation it was petroleum odors were present as well as grey sand, indicative of anaerobic decay of petroleum. This excavation was advanced to a depth of approximately 12 feet below grade and to the south as close as feasible to the foundation of the adjacent building, to the west as close as possible to the sidewalk, and to the north as east as far a feasible given Site constraints.

The two areas of excavation are shown on Figure 2 included in Appendix A. A total of 98.69 tons of material was removed from this area and transported to Ondrick Materials and Recycling, LLC.

6.2 Confirmatory Soil Sampling

Post-excavation soil sampling and analysis was performed for constituents of concern, specifically Volatile and Extractable Petroleum hydrocarbons (VPHEPH). Samples were collected from the bottoms and sides of each excavation in order to characterize the post-excavation conditions. A total of three samples were collected from the first excavation (one bottom and two sidewalls) and eight samples were collected from the second excavation (two bottom and six sidewall samples). The results of the analyses performed on these samples are summarized in Table 2 included in Appendix B. Locations of the samples can be found on Figure 2 included in Appendix A. A complete copy of the laboratory analytical report can be found in Appendix C.

7.0 MANAGEMENT OF REMEDIATION WASTE

7.1 Soil Management

A total of 98.69 tons of material was transported to Ondrick Materials Recycling LLC. Copies of the weight slips are included in Appendix D.

7.2 Dewatering Management

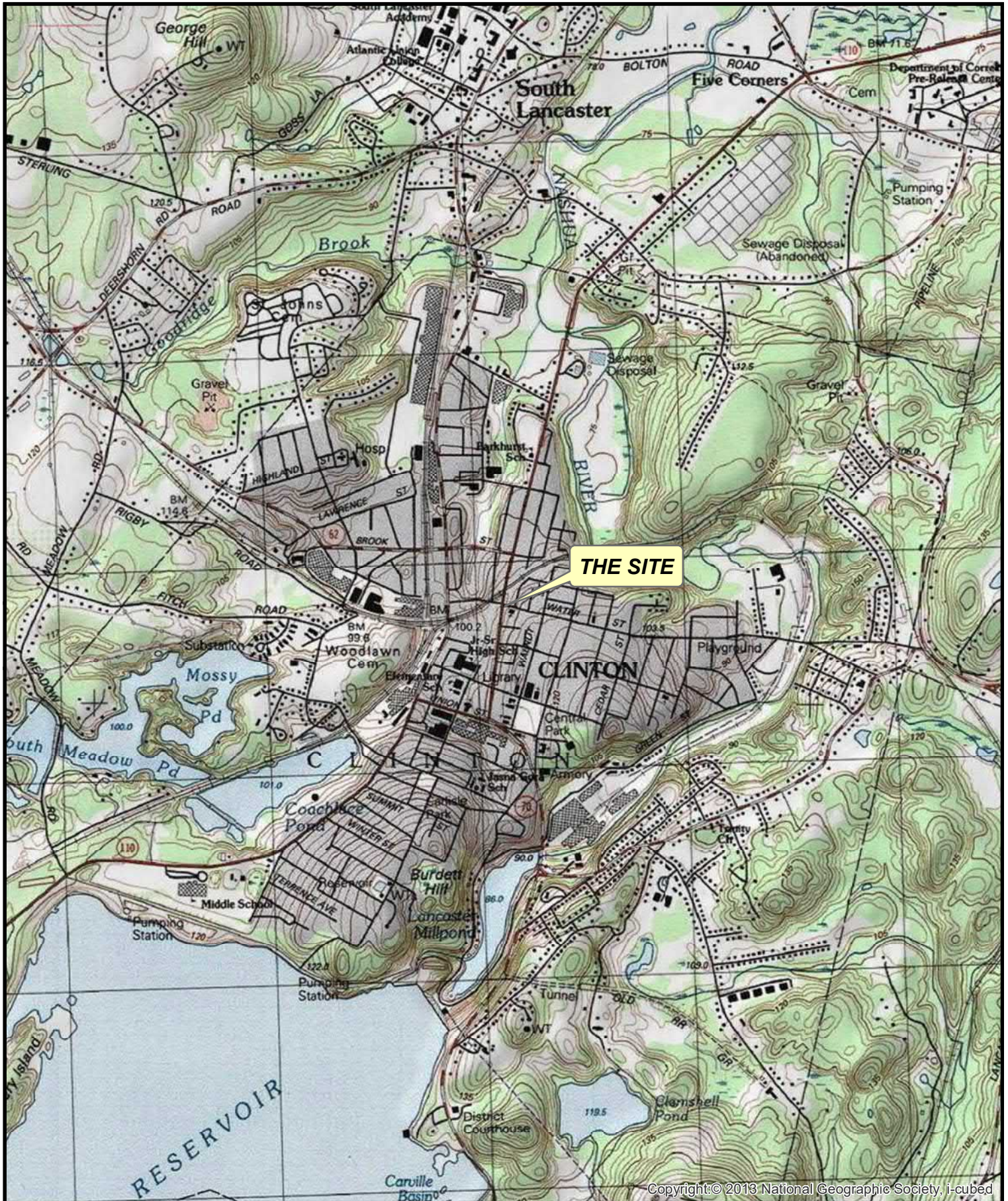
Dewatering was not performed as part of this RAM.

8.0 RAM COMPLETION

The objectives of this Release Abatement Measure are considered complete. The RAM was initiated in order to remove soil from the southern portion of the property which reported concentrations of petroleum hydrocarbon compounds in excess of the Method 1 risk standard in to order to facilitate a future submittal of a Permanent Solution Statement without the need to implement an Activity and Use Limitation. Additional response actions are still required in order to submit a Permanent solution Statement.

APPENDIX A

FIGURES



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0 500 1,000 2,000
Feet

Parker Environmental
Creative Solutions for a Complicated Environment

LOCUS MAP
FORMER GENE'S AUTO
329 MAIN STREET
CLINTON, MASSACHUSETTS

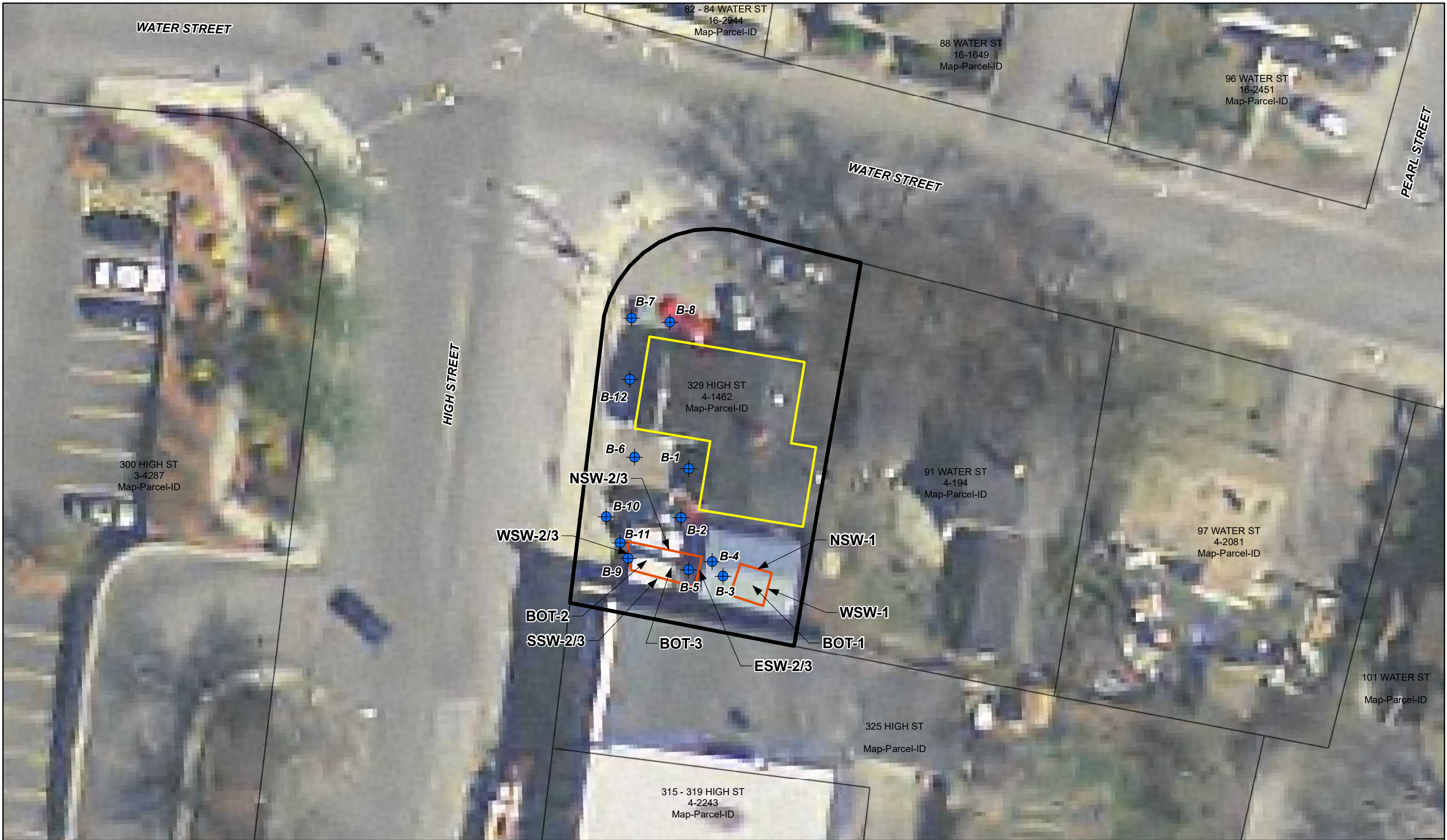
Ref: Parker\Clinton\GenesAuto\LocusMap

Drafted By: JAF

Date: 06/23/19

Source: MassGIS

FIGURE 1



329 MAIN STREET PARCEL



OTHER ASSESSORS PARCELS



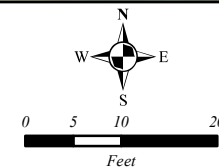
SOIL BORING



AREA OF EXCAVATION



EXISTING BUILDING



SITE MAP
FORMER GENE'S AUTO
329 MAIN STREET
CLINTON, MASSACHUSETTS

NGI REF:

Drafted By: JAF

Date: 07/12/19

Source: MassGIS, ArcGIS, USGS

FIGURE 2

APPENDIX B

TABLES

Table 1
Summary of Soil Analytical Results
Former Gene's Towing
329 High Street
Clinton, MA

	MCP - Method 1 Cleanup Standards		SAMPLING LOCATION							
	S-1/GW-2	S-1/GW-3	B1 (8-9)	B1 Comp (0-10)	B12 (8-9)	B6 (8-9)	B7 (8-9)	B7 Comp (0-10)	B9 (8-9)	B9 Comp (5-10)
Sampling Date			6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019
Sample Depth			8-9 Feet	0-10 Feet	8-9 Feet	8-9 Feet	8-9 Feet	0-10 Feet	8-9 Feet	5-10 Feet
MADEP-EPH-04-1.1 (mg/Kg dry)										
C9-C18 ALIPHATICS	1000	1000	ND (11)	NT	ND (13)	ND (12)	ND (13)	NT	34	NT
C19-C36 ALIPHATICS	3000	3000	ND (11)	NT	ND (13)	ND (12)	ND (13)	NT	NT	NT
UNADJUSTED C11-C22 AROMATICS	~	~	ND (11)	NT	ND (13)	ND (12)	ND (13)	NT	71	NT
C11-C22 AROMATICS	1000	1000	ND (11)	NT	ND (13)	ND (12)	ND (13)	NT	69	NT
ACENAPHTHENE	1000	1000	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
ACENAPHTHYLENE	600	10	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
ANTHRACENE	1000	1000	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
BENZO(A)ANTHRACENE	7	7	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
BENZO(A)PYRENE	2	2	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
BENZO(B)FLUORANTHENE	7	7	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
BENZO(G,H,I)PERYLENE	1000	1000	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
BENZO(K)FLUORANTHENE	70	70	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
CHRYSENE	70	70	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
FLUORANTHENE	1000	1000	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
FLUORENE	1000	1000	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
INDENO(1,2,3-CD)PYRENE	7	7	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
2-METHYLNAPHTHALENE	80	300	ND (0.11)	NT	0.13	ND (0.12)	ND (0.13)	NT	1.1	NT
NAPHTHALENE	20	500	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	1.1	NT
PHENANTHRENE	500	500	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	0.14	NT
PYRENE	1000	1000	ND (0.11)	NT	ND (0.13)	ND (0.12)	ND (0.13)	NT	ND (0.11)	NT
MADEP-VPH-Feb 2018 Rev 2.1 (mg/Kg dry)										
UNADJUSTED C5-C8 ALIPHATICS	~	~	140	NT	ND (14)	18	ND (16)	NT	160	NT
C5-C8 ALIPHATICS	100	100	140	NT	ND (14)	18	ND (16)	NT	160	NT
UNADJUSTED C9-C12 ALIPHATICS	~	~	160	NT	ND (14)	24	17	NT	460	NT
C9-C12 ALIPHATICS	1000	1000	99	NT	ND (14)	ND (12)	16	NT	190	NT
C9-C10 AROMATICS	100	100	59	NT	ND (14)	15	ND (16)	NT	260	NT
BENZENE	40	40	0.071	NT	ND (0.072)	0.068	ND (0.078)	NT	ND (0.29)	NT
ETHYLBENZENE	500	500	0.21	NT	0.48	0.48	0.12	NT	1.1	NT
METHYL TERT-BUTYL ETHER (MTBE)	100	100	ND (0.059)	NT	ND (0.072)	ND (0.062)	ND (0.078)	NT	ND (0.29) *	NT
NAPHTHALENE	20	500	0.30	NT	ND (0.36)	0.40	ND (0.39)	NT	3.5	NT
TOLUENE	500	500	0.076	NT	ND (0.072)	ND (0.062)	ND (0.078)	NT	ND (0.29)	NT
M/P-XYLENE	100	500	0.15	NT	2.8	1.8	0.79	NT	7.8	NT
O-XYLENE	100	500	0.17	NT	1.1	0.17	0.48	NT	4.3	NT
SM 2540G (% Wt)										
% Solids	~	~	87.7	87.1	78.7	82.3	78.0	73.0	87.3	87.9
SM21-22 2510B Modified (µmhos/cm)										
SPECIFIC CONDUCTANCE	~	~	NT	11	NT	NT	NT	12	NT	4.7
SW-846 1030 (present/absent)										
IGNITABILITY	~	~	NT	Absent	NT	NT	NT	Absent	NT	Absent
SW-846 6010D (mg/Kg dry) Metals Digestion										
ARSENIC	20	20	NT	9.8	NT	NT	NT	13	NT	4.4
BARIUM	1000	1000	NT	21	NT	NT	NT	33	NT	33
CADMIUM	70	70	NT	0.57	NT	NT	NT	0.49	NT	0.19
CHROMIUM	100	100	NT	13	NT	NT	NT	17	NT	15
LEAD	200	200	NT	17	NT	NT	NT	9.1	NT	20
SELENIUM	400	400	NT	ND (3.9)	NT	NT	NT	ND (4.4)	NT	ND (3.7)
SILVER	100	100	NT	ND (0.39)	NT	NT	NT	ND (0.44)	NT	ND (0.37)
SW-846 7471B (mg/Kg dry) Metals Digestion										
MERCURY	20	20	NT	0.038	NT	NT	NT	ND (0.034)	NT	ND (0.027)
SW-846 8082A (mg/Kg dry)										
PCB 1016	1	1	NT	ND (0.089)	NT	NT	NT	ND (0.20)	NT	ND (0.17)
PCB 1221	1	1	NT	ND (0.089)	NT	NT	NT	ND (0.20)	NT	ND (0.17)
PCB 1232	1	1	NT	ND (0.089)	NT	NT	NT	ND (0.20)	NT	ND (0.17)
PCB 1242	1	1	NT	ND (0.089)	NT	NT	NT	ND (0.20)	NT	ND (0.17)
PCB 1248	1	1	NT	ND (0.089)	NT	NT	NT	ND (0.20)	NT	0.25
PCB 1254	1	1	NT	ND (0.089)	NT	NT	NT	ND (0.20)	NT	ND (0.17)
PCB 1260	1	1	NT	ND (0.089)	NT	NT	NT	ND (0.20)	NT	ND (0.17)
PCB 1262	1	1	NT	ND (0.089)	NT	NT	NT	ND (0.20)	NT	ND (0.17)
PCB 1268	1	1	NT	ND (0.089)	NT	NT	NT	ND (0.20)	NT	ND (0.17)
SW-846 8100 Modified (mg/Kg dry)										
TPH	1000	1000	NT	51	NT	NT	NT	36	NT	8500
SW-846 8260C(1)(1) (mg/Kg dry)										
ACETONE	50	400	NT	NT	ND (0.22)	ND (0.12)	NT	NT	NT	NT
TERT-AMYL METHYL ETHER	~	~	NT	NT	ND (0.0022)	ND (0.0012)	NT	NT	NT	NT
BENZENE	40	40	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
BROMOBENZENE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
BROMOCHLOROMETHANE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
BROMODICHLOROMETHANE	0.1	30	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
BROMOFORM	1	300	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
BROMOMETHANE	0.5	30	NT	NT	ND (0.022)	ND (0.012)	NT	NT	NT	NT
2-BUTANONE (MEK)	50	400	NT	NT	ND (0.087)	ND (0.046)	NT	NT	NT	NT
N-BUTYLBENZENE	~	~	NT	NT	0.0049	0.018	NT	NT	NT	NT
SEC-BUTYLBENZENE	~	~	NT	NT	ND (0.0043)	0.0038	NT	NT	NT	NT
TERT-BUTYLBENZENE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
TERT-BUTYLETHYL ETHER	~	~	NT	NT	ND (0.0022)	ND (0.0012)	NT	NT	NT	NT
CARBON DISULFIDE	~	~	NT	NT	ND (0.013)	ND (0.0069)	NT	NT	NT	NT
CARBON TETRACHLORIDE	5	30	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
CHLOROBENZENE	3	100	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
CHLORODIBROMOMETHANE	0.03	20	NT	NT	ND (0.0022)	ND (0.0012)	NT	NT	NT	NT
CHLOROETHANE	~	~	NT	NT	ND (0.022)	ND (0.012)	NT	NT	NT	NT
CHLOROFORM	0.2	500	NT	NT	ND (0.0087)	ND (0.0046)	NT	NT	NT	NT
CHLOROMETHANE	~	~	NT	NT	ND (0.022)	ND (0.012)	NT	NT	NT	NT
2-CHLOROTOLUENE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
4-CHLOROTOLUENE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,2-DIBROMO-3-CHLOROPROPANE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,2-DIBROMOETHANE (EDB)	0.1	1	NT	NT	ND (0.0022)	ND (0.0012)	NT	NT	NT	NT
DIBROMOMETHANE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,2-DICHLOROBENZENE	100	300	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,3-DICHLOROBENZENE	100	100	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,4-DICHLOROBENZENE	1	80	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
DICHLORODIFLUOROMETHANE	~	~	NT	NT	ND (0.022)	ND (0.012)	NT	NT	NT	NT
1,1-DICHLOROETHANE	9	500	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,2-DICHLOROETHANE	0.1	20	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,1-DICHLOROETHYLENE	40	500	NT	NT	ND (0.0087)	ND (0.0046)	NT	NT	NT	NT
CIS-1,2-DICHLOROETHYLENE	0.1	100	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
TRANS-1,2-DICHLOROETHYLENE	1	500	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,2-DICHLOROPROPANE	0.1	30	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,3-DICHLOROPROPANE	~	~	NT	NT	ND (0.0022)	ND (0.0012)	NT	NT	NT	NT
2,2-DICHLOROPROPANE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,1-DICHLOROPROPENE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
CIS-1,3-DICHLOROPROPENE	0.4	20	NT	NT	ND (0.0022)	ND (0.0012)	NT	NT	NT	NT
TRANS-1,3-DICHLOROPROPENE	0.4	20	NT	NT	ND (0.0022)	ND (0.0012)	NT	NT	NT	NT
DIETHYL ETHER	~	~	NT	NT	ND (0.022)	ND (0.012)	NT	NT	NT	NT
DIISOPROPYL ETHER	~	~	NT	NT	ND (0.0022)	ND (0.0012)	NT	NT	NT	NT
1,4-DIOXANE	6	20	NT	NT	ND (0.22) *	ND (0.12)	NT	NT	NT	NT
ETHYLBENZENE	500	500	NT	NT	0.053	0.058	NT	NT	NT	NT
HEXACHLOROBUTADIENE	30	30	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
2-HEXANONE	~	~	NT	NT	ND (0.043)	ND (0.023)	NT	NT	NT	NT

Table 1
Summary of Soil Analytical Results
Former Gene's Towing
329 High Street
Clinton, MA

	MCP - Method 1 Cleanup Standards		SAMPLING LOCATION							
	S-1/GW-2	S-1/GW-3	B1 (8-9)	B1 Comp (0-10)	B12 (8-9)	B6 (8-9)	B7 (8-9)	B7 Comp (0-10)	B9 (8-9)	B9 Comp (5-10)
Sampling Date			6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019
Sample Depth			8-9 Feet	0-10 Feet	8-9 Feet	8-9 Feet	8-9 Feet	0-10 Feet	8-9 Feet	5-10 Feet
ISOPROPYLBENZENE	~	~	NT	NT	ND (0.0043)	0.0096	NT	NT	NT	NT
P-ISOPROPYLTOLUENE	~	~	NT	NT	ND (0.0043)	0.0028	NT	NT	NT	NT
METHYL TERT-BUTYL ETHER (MTBE)	100	100	NT	NT	ND (0.0087)	ND (0.0046)	NT	NT	NT	NT
METHYLENE CHLORIDE	4	400	NT	NT	ND (0.022)	ND (0.012)	NT	NT	NT	NT
4-METHYL-2-PENTANONE (MIBK)	50	400	NT	NT	ND (0.043)	ND (0.023)	NT	NT	NT	NT
NAPHTHALENE	20	500	NT	NT	0.039	0.078	NT	NT	NT	NT
N-PROPYLBENZENE	~	~	NT	NT	0.012	0.033	NT	NT	NT	NT
STYRENE	4	70	NT	NT	0.0048	ND (0.0023)	NT	NT	NT	NT
1,1,1,2-TETRACHLOROETHANE	0.1	80	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,1,2,2-TETRACHLOROETHANE	0.02	10	NT	NT	ND (0.0022)	ND (0.0012)	NT	NT	NT	NT
TETRACHLOROETHYLENE	10	30	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
TETRAHYDROFURAN	~	~	NT	NT	ND (0.022)	ND (0.012)	NT	NT	NT	NT
TOLUENE	500	500	NT	NT	0.0088	ND (0.0023)	NT	NT	NT	NT
1,2,3-TRICHLOROBENZENE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,2,4-TRICHLOROBENZENE	6	700	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,1,1-TRICHLOROETHANE	500	500	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,1,2-TRICHLOROETHANE	2	40	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
TRICHLOROETHYLENE	0.3	30	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
TRICHLOROFLUOROMETHANE	~	~	NT	NT	ND (0.022)	ND (0.012)	NT	NT	NT	NT
1,2,3-TRICHLOROPROPANE	~	~	NT	NT	ND (0.0043)	ND (0.0023)	NT	NT	NT	NT
1,2,4-TRIMETHYLBENZENE	~	~	NT	NT	0.11	NT	NT	NT	NT	NT
1,3,5-TRIMETHYLBENZENE	~	~	NT	NT	0.027	0.067	NT	NT	NT	NT
VINYL CHLORIDE	0.7	1	NT	NT	ND (0.022)	ND (0.012)	NT	NT	NT	NT
M/P-XYLENE	100	500	NT	NT	0.32	0.22	NT	NT	NT	NT
O-XYLENE	100	500	NT	NT	0.14	ND (0.0023)	NT	NT	NT	NT
SW-846 8260C(2) (mg/Kg dry)										
1,2,4-TRIMETHYLBENZENE	~	~	NT	NT	NT	2.0	NT	NT	NT	NT
SW-846 8260C(3) (mg/Kg dry)										
ACETONE	50	400	ND (2.9)	NT	NT	NT	ND (7.8) *	NT	ND (6.9) *	NT
TERT-AMYL METHYL ETHER	~	~	ND (0.029)	NT	NT	NT	ND (0.078)	NT	ND (0.069)	NT
BENZENE	40	40	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
BROMOBENZENE	~	~	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
BROMOCHLOROMETHANE	~	~	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
BROMODICHLOROMETHANE	0.1	30	ND (0.059)	NT	NT	NT	ND (0.16) *	NT	ND (0.14) *	NT
BROMOFORM	1	300	ND (0.059)	NT	NT	NT	ND (0.16) *	NT	ND (0.14) *	NT
BROMOMETHANE	0.5	30	ND (0.12)	NT	NT	NT	ND (0.31)	NT	ND (0.27)	NT
2-BUTANONE (MEK)	50	400	ND (1.2)	NT	NT	NT	ND (3.1)	NT	ND (2.7)	NT
N-BUTYLBENZENE	~	~	2.2	NT	NT	NT	0.62	NT	3.2	NT
SEC-BUTYLBENZENE	~	~	0.34	NT	NT	NT	ND (0.16)	NT	0.50	NT
TERT-BUTYLBENZENE	~	~	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
TERT-BUTYLETHYL ETHER	~	~	ND (0.029)	NT	NT	NT	ND (0.078)	NT	ND (0.069)	NT
CARBON DISULFIDE	~	~	ND (0.59)	NT	NT	NT	ND (1.6)	NT	ND (1.4)	NT
CARBON TETRACHLORIDE	5	30	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
CHLOROBENZENE	3	100	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
CHLORODIBROMOMETHANE	0.03	20	ND (0.029) *	NT	NT	NT	ND (0.078) *	NT	ND (0.069) *	NT
CHLOROETHANE	~	~	ND (0.12)	NT	NT	NT	ND (0.31)	NT	ND (0.27)	NT
CHLOROFORM	0.2	500	ND (0.12)	NT	NT	NT	ND (0.31) *	NT	ND (0.27) *	NT
CHLOROMETHANE	~	~	ND (0.12)	NT	NT	NT	ND (0.31)	NT	ND (0.27)	NT
2-CHLOROTOLUENE	~	~	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
4-CHLOROTOLUENE	~	~	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,2-DIBROMO-3-CHLOROPROPANE	~	~	ND (0.24)	NT	NT	NT	ND (0.63)	NT	ND (0.55)	NT
1,2-DIBROMOETHANE (EDB)	0.1	1	ND (0.029)	NT	NT	NT	ND (0.078)	NT	ND (0.069)	NT
DIBROMOMETHANE	~	~	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,2-DICHLOROBENZENE	100	300	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,3-DICHLOROBENZENE	100	100	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,4-DICHLOROBENZENE	1	80	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
DICHLORODIFLUOROMETHANE	~	~	ND (0.12)	NT	NT	NT	ND (0.31)	NT	ND (0.27)	NT
1,1-DICHLOROETHANE	9	500	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,2-DICHLOROETHANE	0.1	20	ND (0.059)	NT	NT	NT	ND (0.16) *	NT	ND (0.14) *	NT
1,1-DICHLOROETHYLENE	40	500	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
CIS-1,2-DICHLOROETHYLENE	0.1	100	ND (0.059)	NT	NT	NT	ND (0.16) *	NT	ND (0.14) *	NT
TRANS-1,2-DICHLOROETHYLENE	1	500	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,2-DICHLOROPROPANE	0.1	30	ND (0.059)	NT	NT	NT	ND (0.16) *	NT	ND (0.14) *	NT
1,3-DICHLOROPROPANE	~	~	ND (0.029)	NT	NT	NT	ND (0.078)	NT	ND (0.069)	NT
2,2-DICHLOROPROPANE	~	~	ND (0.059)	NT	NT	NT	ND (0.16) *	NT	ND (0.14) *	NT
1,1-DICHLOROPROPENE	~	~	ND (0.12) *	NT	NT	NT	ND (0.31) *	NT	ND (0.27) *	NT
CIS-1,3-DICHLOROPROPENE	0.4	20	ND (0.029) *	NT	NT	NT	ND (0.078) *	NT	ND (0.069) *	NT
TRANS-1,3-DICHLOROPROPENE	0.4	20	ND (0.029) *	NT	NT	NT	ND (0.078) *	NT	ND (0.069) *	NT
DIETHYL ETHER	~	~	ND (0.12)	NT	NT	NT	ND (0.31)	NT	ND (0.27)	NT
DIISOPROPYL ETHER	~	~	ND (0.029)	NT	NT	NT	ND (0.078)	NT	ND (0.069)	NT
1,4-DIOXANE	6	20	ND (2.9) *	NT	NT	NT	ND (7.8) *	NT	ND (6.9) *	NT
ETHYLBENZENE	500	500	ND (0.059)	NT	NT	NT	0.46	NT	1.4	NT
HEXACHLOROBUTADIENE	30	30	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
2-HEXANONE	~	~	ND (0.59)	NT	NT	NT	ND (1.6)	NT	ND (1.4)	NT
ISOPROPYLBENZENE	~	~	0.068	NT	NT	NT	0.23	NT	0.59	NT
P-ISOPROPYLTOLUENE	~	~	0.20	NT	NT	NT	ND (0.16)	NT	0.36	NT
METHYL TERT-BUTYL ETHER (MTBE)	100	100	ND (0.059)	NT	NT	NT	ND (0.16) *	NT	ND (0.14) *	NT
METHYLENE CHLORIDE	4	400	ND (0.29) *	NT	NT	NT	ND (0.78) *	NT	ND (0.69) *	NT
4-METHYL-2-PENTANONE (MIBK)	50	400	ND (0.59) *	NT	NT	NT	ND (1.6) *	NT	ND (1.4) *	NT
NAPHTHALENE	20	500	0.19	NT	NT	NT	1.1	NT	3.7	NT
N-PROPYLBENZENE	~	~	0.39	NT	NT	NT	0.78	NT	2.7	NT
STYRENE	4	70	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,1,1,2-TETRACHLOROETHANE	0.1	80	ND (0.059)	NT	NT	NT	ND (0.16) *	NT	ND (0.14) *	NT
1,1,2,2-TETRACHLOROETHANE	0.02	10	ND (0.029) *	NT	NT	NT	ND (0.078) *	NT	ND (0.069) *	NT
TETRACHLOROETHYLENE	10	30	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
TETRAHYDROFURAN	~	~	ND (0.24)	NT	NT	NT	ND (0.63)	NT	ND (0.55)	NT
TOLUENE	500	500	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,2,3-TRICHLOROBENZENE	~	~	ND (0.24)	NT	NT	NT	ND (0.63)	NT	ND (0.55)	NT
1,2,4-TRICHLOROBENZENE	6	700	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,1,1-TRICHLOROETHANE	500	500	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
1,1,2-TRICHLOROETHANE	2	40	ND (0.059)	NT	NT	NT	ND (0.16) *	NT	ND (0.14) *	NT
TRICHLOROETHYLENE	0.3	30	ND (0.059)	NT	NT	NT	ND (0.16)	NT	ND (0.14)	NT
TRICHLOROFLUOROMETHANE	~	~	ND (0.12)	NT	NT	NT	ND (0.31)	NT	ND (0.27)	NT
1,2,3-TRICHLOROPROPANE	~	~	ND (0.12)	NT	NT	NT	ND (0.31)	NT	ND (0.27)	NT
1,2,4-TRIMETHYLBENZENE	~	~	1.7	NT	NT	NT	8.8	NT	19	NT
1,3,5-TRIMETHYLBENZENE	~	~	0.60	NT	NT	NT	3.0	NT	6.8	NT
VINYL CHLORIDE	0.7	1	ND (0.12)	NT	NT	NT	ND (0.31)	NT	ND (0.27)	NT
M/P-XYLENE	100	500	ND (0.12)	NT	NT	NT	3.9	NT	7.2	NT
O-XYLENE	100	500	ND (0.059)	NT	NT	NT	2.4	NT	2.1	NT

Table 1
Summary of Soil Analytical Results
Former Gene's Towing
329 High Street
Clinton, MA

	MCP - Method 1 Cleanup Standards		SAMPLING LOCATION							
	S-1/GW-2	S-1/GW-3	B1 (8-9)	B1 Comp (0-10)	B12 (8-9)	B6 (8-9)	B7 (8-9)	B7 Comp (0-10)	B9 (8-9)	B9 Comp (5-10)
Sampling Date			6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019	6/14/2019
Sample Depth			8-9 Feet	0-10 Feet	8-9 Feet	8-9 Feet	8-9 Feet	0-10 Feet	8-9 Feet	5-10 Feet
SW-846 8270D (mg/Kg dry)										
ACENAPHTHENE	1000	1000	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
ACENAPHTHYLENE	600	10	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
ACETOPHENONE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
ANILINE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
ANTHRACENE	1000	1000	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
BENZO(A)ANTHRACENE	7	7	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
BENZO(A)PYRENE	2	2	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
BENZO(B)FLUORANTHENE	7	7	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
BENZO(G,H,I)PERYLENE	1000	1000	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
BENZO(K)FLUORANTHENE	70	70	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
BIS(2-CHLOROETHOXY)METHANE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
BIS(2-CHLOROETHYL)ETHER	0.7	8	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
BIS(2-CHLOROISOPROPYL)ETHER	0.7	30	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
BIS(2-ETHYLHEXYL)PHTHALATE	90	90	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	2.3
4-BROMOPHENYL PHENYL ETHER	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
BUTYLBENZYLPHTHALATE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
4-CHLOROANILINE	100	3	NT	ND (0.76)	NT	NT	NT	ND (0.90)	NT	ND (0.75)
2-CHLORONAPHTHALENE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
2-CHLOROPHENOL	100	100	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
CHRYSENE	70	70	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
DIBENZ(A,H)ANTHRACENE	0.7	0.7	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
DIBENZOFURAN	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
DI-N-BUTYLPHTHALATE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
1,2-DICHLOROBENZENE	100	300	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
1,3-DICHLOROBENZENE	100	100	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
1,4-DICHLOROBENZENE	1	80	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
3,3'-DICHLOROBENZIDINE	3	3	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
2,4-DICHLOROPHENOL	60	40	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
DIETHYLPHTHALATE	200	300	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
2,4-DIMETHYLPHENOL	100	500	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
DIMETHYLPHTHALATE	50	600	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
2,4-DINITROPHENOL	50	50	NT	ND (0.76)	NT	NT	NT	ND (0.90)	NT	ND (0.75)
2,4-DINITROTOLUENE	2	2	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
2,6-DINITROTOLUENE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
DI-N-OCTYLPHTHALATE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
1,2-DIPHENYLHYDRAZINE (AZOBENZENE)	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
FLUORANTHENE	1000	1000	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	0.25
FLUORENE	1000	1000	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	0.52
HEXACHLOROBENZENE	0.7	0.7	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
HEXACHLOROBUTADIENE	30	30	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
HEXACHLOROETHANE	3	50	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
INDENO(1,2,3-CD)PYRENE	7	7	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	ND (0.19)
ISOPHORONE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
2-METHYLNAPHTHALENE	80	300	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	33
O-CRESOL	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
M/P-CRESOL	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
NAPHTHALENE	20	500	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	29
NITROBENZENE	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
2-NITROPHENOL	~	~	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
4-NITROPHENOL	~	~	NT	ND (0.76)	NT	NT	NT	ND (0.90)	NT	ND (0.75)
PENTACHLOROPHENOL	3	3	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
PHENANTHRENE	500	500	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	0.89
PHENOL	50	20	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
PYRENE	1000	1000	NT	ND (0.19)	NT	NT	NT	ND (0.23)	NT	0.53
1,2,4-TRICHLOROBENZENE	6	700	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
2,4,5-TRICHLOROPHENOL	1000	600	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
2,4,6-TRICHLOROPHENOL	20	20	NT	ND (0.39)	NT	NT	NT	ND (0.46)	NT	ND (0.39)
SW-846 9014 (mg/Kg)										
REACTIVE CYANIDE	~	~	NT	ND (3.9)	NT	NT	NT	ND (4.0)	NT	ND (3.9)
SW-846 9030A (mg/Kg)										
REACTIVE SULFIDE	~	~	NT	ND (19)	NT	NT	NT	ND (20)	NT	ND (20)
SW-846 9045C (pH Units)										
PH	~	~	NT	8.4	NT	NT	NT	7.7	NT	7.2

NOTES:

1. An asterisk (*) following a detection limit indicates that the minimum laboratory reporting limit exceeds one or more of the regulatory criteria.
2. ND = Not detected above the lab reporting limits shown in parenthesis.
3. NT = Not tested.
4. ~ = No Method 1 Standard or UCL available
5. Shaded values exceed the MCP Reportable Concentrations (RCs).
6. Bolded values exceed the Method 1 Cleanup Standards.
7. Bold Red values exceed the TCLP limits.
8. Sample collected for disposal characterization
9. Con-Test Laboratory is not responsible for the regulatory content, data comparisons with regulations, or decisions made based on data comparisons shown in this deliverable. Please notify us should you be aware of any regulatory information that may not be correct or that has changed.

Table 2
Summary of Post-Excavation Soil Sample Analytical Results
Former Gene's Towing
329 High Street
Clinton, MA

Parameter			SAMPLING LOCATION										
	S-1/GW-2	S-1/GW-3	Bottom-1 6'	ESW-1 3'	NSW-1 3'	BOT-2 11'	BOT-3 11'	ESW-2 4'	ESW-3 8'	NSW-2 4'	NSW-3 8'	SSW-1 8'	WSW-1 7'
Sampling Date			6/27/2019	6/27/2019	6/27/2019	6/28/2019	6/28/2019	6/28/2019	6/28/2019	6/28/2019	6/28/2019	6/28/2019	6/28/2019
Sample Depth			-6 Feet	-3 Feet	-3 Feet	11- Feet	11- Feet	4- Feet	8- Feet	4- Feet	8- Feet	8- Feet	7- Feet
MADEP-EPH-04-1.1 (mg/Kg dry)													
C9-C18 ALIPHATICS	1000	1000	ND (12)	ND (10)	ND (11)	ND (13)	ND (13)	320	ND (13)	ND (11)	25	59	1700
C19-C36 ALIPHATICS	3000	3000	ND (12)	ND (10)	ND (11)	ND (13)	ND (13)	5200	65	ND (11)	340	690	14000
UNADJUSTED C11-C22 AROMATICS	~	~	ND (12)	ND (10)	ND (11)	ND (13)	ND (13)	870	ND (13)	ND (11)	74	170	2100
C11-C22 AROMATICS	1000	1000	ND (12)	ND (10)	ND (11)	ND (13)	ND (13)	870	ND (13)	ND (11)	74	170	2100
ACENAPHTHENE	1000	1000	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	1.5
ACENAPHTHYLENE	600	10	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
ANTHRACENE	1000	1000	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	0.78
BENZO(A)ANTHRACENE	7	7	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
BENZO(A)PYRENE	2	2	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
BENZO(B)FLUORANTHENE	7	7	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
BENZO(G,H,I)PERYLENE	1000	1000	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
BENZO(K)FLUORANTHENE	70	70	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
CHRYSENE	70	70	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
FLUORANTHENE	1000	1000	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	1.2
FLUORENE	1000	1000	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	1.9
INDENO(1,2,3-CD)PYRENE	7	7	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
2-METHYLNAPHTHALENE	80	300	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	1.8	ND (0.13)	ND (0.11)	0.24	0.58	24
NAPHTHALENE	20	500	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	1.6	ND (0.13)	ND (0.11)	ND (0.12)	0.26	37
PHENANTHRENE	500	500	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	0.30	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	2.4
PYRENE	1000	1000	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.22)	ND (0.23)
MADEP-VPH-Feb 2018 Rev 2.1 (mg/Kg dry)													
UNADJUSTED C5-C8 ALIPHATICS	~	~	NA	NA	NA	ND (15)	ND (15)	ND (250)	ND (12)	ND (12)	17	290	350
C5-C8 ALIPHATICS	100	100	NA	NA	NA	ND (15)	ND (15)	ND (250) *	ND (12)	ND (12)	17	290	350
UNADJUSTED C9-C12 ALIPHATICS	~	~	NA	NA	NA	ND (15)	17	1400	21	ND (12)	80	920	1700
C9-C12 ALIPHATICS	1000	1000	NA	NA	NA	ND (15)	15	670	ND (12)	ND (12)	36	480	810
C9-C10 AROMATICS	100	100	NA	NA	NA	ND (15)	ND (15)	640	12	ND (12)	41	410	820
BENZENE	40	40	NA	NA	NA	ND (0.075)	ND (0.073)	ND (1.2)	ND (0.058)	ND (0.059)	ND (0.050)	ND (0.54)	ND (1.3)
ETHYLBENZENE	500	500	NA	NA	NA	0.18	0.30	4.1	0.27	ND (0.059)	0.24	5.6	4.0
METHYL TERT-BUTYL ETHER (MTBE)	100	100	NA	NA	NA	ND (0.075)	ND (0.073)	ND (1.2) *	ND (0.058)	ND (0.059)	ND (0.050)	ND (0.54) *	ND (1.3) *
NAPHTHALENE	20	500	NA	NA	NA	ND (0.37)	ND (0.36)	14	0.47	ND (0.29)	1.0	7.1	13
TOLUENE	500	500	NA	NA	NA	ND (0.075)	0.12	ND (1.2)	ND (0.058)	ND (0.059)	ND (0.050)	0.74	ND (1.3)
M/P-XYLENE	100	500	NA	NA	NA	1.0	1.6	25	1.3	ND (0.12)	1.7	23	12
O-XYLENE	100	500	NA	NA	NA	0.40	0.70	17	0.13	ND (0.059)	0.83	8.5	17
SM 2540G (% Wt)													
% Solids	~	~	83.9	94.9	93.6	77.0	78.7	86.2	78.2	90.6	84.9	90.6	85.2

NOTES:

1. An asterisk (*) following a detection limit indicates that the minimum laboratory reporting limit exceeds one or more of the regulatory criteria.

2. ND = Not detected above the lab reporting limits shown in parenthesis.

3. NT = Not tested.

4. ~ = No Method 1 Standard or UCL available

5. Shaded values exceed the Applicable MCP Method 1 Risk Standard.

6. Bolded values exceed the Laboratory Reporting Limit

7. Bold Red values exceed the TCLP limits.

8. Con-Test Laboratory is not responsible for the regulatory content, data comparisons with regulations, or decisions made based on data comparisons shown in this deliverable. Please notify us should you be aware of any regulatory information that may not be correct or that has changed.

9. NA - Not Analyzed

Table 3
Summary of Groundwater Sample Analysis
Former Gene's Towing
329 High Street
Clinton, MA

Parameter				SAMPLING LOCATION
	GW-2	GW-3	UCL	MW-2
Sampling Date				6/28/2019
Sample Depth				
MADEP-VPH-Feb 2018 Rev 2.1 (µg/L)				
UNADJUSTED C5-C8 ALIPHATICS	~	~	~	320
C5-C8 ALIPHATICS	3000	50000	100000	320
UNADJUSTED C9-C12 ALIPHATICS	~	~	~	320
C9-C12 ALIPHATICS	5000	50000	100000	ND (100)
C9-C10 AROMATICS	4000	50000	100000	320
BENZENE	1000	10000	100000	ND (1.0)
ETHYLBENZENE	20000	5000	100000	1.0
METHYL TERT-BUTYL ETHER (MTBE)	50000	50000	100000	ND (1.0)
NAPHTHALENE	700	20000	100000	ND (5.0)
TOLUENE	50000	40000	100000	ND (1.0)
M/P-XYLENE	3000	5000	100000	ND (2.0)
O-XYLENE	3000	5000	100000	2.2

NOTES:

1. An asterisk (*) following a detection limit indicates that the minimum laboratory reporting limit exceeds one or more of the regulatory criteria.
2. ND = Not detected above the lab reporting limits shown in parenthesis.
3. NT = Not tested.
4. ~ = No Method 1 Standard or UCL available
5. Shaded values exceed the MCP Reportable Concentrations (RCs).
6. Bolded values exceed the Method 1 Cleanup Standards.
7. Bold Red values exceed the TCLP limits.
8. Con-Test Laboratory is not responsible for the regulatory content, data comparisons with regulations, or decisions made based on data comparisons shown in this deliverable. Please notify us should you be aware of any regulatory information that may not be correct or that has changed.

APPENDIX C
LABORATORY ANALYTICAL REPORTS

June 26, 2019

Scott Parker
Parker Environmental Corp
97 Walnut Street
Clinton, MA 01510

Project Location: 329 High St, Clinton, MA
Client Job Number:
Project Number: [none]
Laboratory Work Order Number: 19F0857

Enclosed are results of analyses for samples received by the laboratory on June 14, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Michelle Koch". The signature is written in a cursive, flowing style.

Michelle M. Koch
Project Manager

Table of Contents

Sample Summary	4
Case Narrative	6
Sample Results	9
19F0857-01	9
19F0857-02	14
19F0857-03	20
19F0857-04	25
19F0857-05	30
19F0857-06	36
19F0857-07	41
19F0857-08	47
Sample Preparation Information	52
QC Data	55
Volatile Organic Compounds by GC/MS	55
B233476	55
B233680	59
Semivolatile Organic Compounds by GC/MS	64
B233490	64
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	68
B234079	68
Petroleum Hydrocarbons Analyses	69
B233487	69
Petroleum Hydrocarbons Analyses - EPH	70
B233529	70
Petroleum Hydrocarbons Analyses - VPH	73

Table of Contents (continued)

B233483	73
Metals Analyses (Total)	75
B233608	75
B233722	75
Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)	76
B233426	76
B233432	76
B233446	76
B233447	76
Dual Column RPD Report	77
Flag/Qualifier Summary	78
Certifications	79
Chain of Custody/Sample Receipt	87

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Parker Environmental Corp
97 Walnut Street
Clinton, MA 01510
ATTN: Scott Parker

REPORT DATE: 6/26/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19F0857

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 329 High St, Clinton, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B1 (8-9)	19F0857-01	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G SW-846 8260C	
B1 Comp (0-10)	19F0857-02	Soil		SM 2540G SM21-22 2510B Modified SW-846 1030 SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8100 Modified SW-846 8270D SW-846 9014 SW-846 9030A SW-846 9045C	
B6 (8-9)	19F0857-03	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G SW-846 8260C	
B7 (8-9)	19F0857-04	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G SW-846 8260C	
B7 Comp (0-10)	19F0857-05	Soil		SM 2540G SM21-22 2510B Modified SW-846 1030 SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8100 Modified SW-846 8270D SW-846 9014 SW-846 9030A SW-846 9045C	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Parker Environmental Corp
97 Walnut Street
Clinton, MA 01510
ATTN: Scott Parker

REPORT DATE: 6/26/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19F0857

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 329 High St, Clinton, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B9 (8-9)	19F0857-06	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G SW-846 8260C	
B9 Comp (5-10)	19F0857-07	Soil		SM 2540G SM21-22 2510B Modified SW-846 1030 SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8100 Modified SW-846 8270D SW-846 9014 SW-846 9030A SW-846 9045C	
B12 (8-9)	19F0857-08	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G SW-846 8260C	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

REVISED REPORT - 6/25/19 - PCB reported on samples 19F0857-02, -05 & -07 per chain of custody.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SW-846 8100 Modified**Qualifications:****S-01**

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:**2-Fluorobiphenyl**

19F0857-07[B9 Comp (5-10)]

SW-846 8260C**Qualifications:****RL-05**

Elevated reporting limit due to high concentration of target compounds. MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:

19F0857-04[B7 (8-9)], 19F0857-06[B9 (8-9)]

RL-07

Elevated reporting limit based on lowest point in calibration.

MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:**Carbon Disulfide**

19F0857-01[B1 (8-9)]

Methylene Chloride

19F0857-01[B1 (8-9)]

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:**Methyl tert-Butyl Ether (MTBE)**

19F0857-03[B6 (8-9)], 19F0857-08[B12 (8-9)], B233476-BLK1, B233476-BS1, B233476-BSD1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:**1,4-Dioxane**

19F0857-01[B1 (8-9)], 19F0857-03[B6 (8-9)], 19F0857-04[B7 (8-9)], 19F0857-06[B9 (8-9)], 19F0857-08[B12 (8-9)], B233476-BLK1, B233476-BS1, B233476-BSD1, B233680-BLK1, B233680-BS1, B233680-BSD1

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**Bromomethane**

B233680-BS1, B233680-BSD1

Chloromethane

B233680-BS1, B233680-BSD1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:**Bromomethane**

19F0857-03[B6 (8-9)], 19F0857-08[B12 (8-9)], B233476-BLK1, B233476-BS1, B233476-BSD1

SW-846 8270D**Qualifications:****V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:**Di-n-octylphthalate**

19F0857-02[B1 Comp (0-10)], 19F0857-05[B7 Comp (0-10)], 19F0857-07[B9 Comp (5-10)], B233490-BLK1, B233490-BS1, B233490-BSD1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:**4-Chloroaniline**

19F0857-02[B1 Comp (0-10)], 19F0857-05[B7 Comp (0-10)], 19F0857-07[B9 Comp (5-10)], B233490-BLK1, B233490-BS1, B233490-BSD1

Aniline

19F0857-02[B1 Comp (0-10)], 19F0857-05[B7 Comp (0-10)], 19F0857-07[B9 Comp (5-10)], B233490-BLK1, B233490-BS1, B233490-BSD1

MADEP-EPH-04-1.1

SPE cartridge contamination with non-petroleum compounds, if present, is verified by GC/MS in each method blank per extraction batch and excluded from C 11-C22 aromatic range fraction in all samples in the batch. No significant modifications were made to the method.

MADEP-VPH-Feb 2018 Rev 2.1

No significant modifications were made to the method. All VPH samples were received preserved properly in methanol with a soil/methanol ratio of 1:1 +/- 25% completely covered by methanol in the proper containers specified on the chain-of-custody form unless specified in this narrative.

Analytical column used for VPH analysis is Restek, Rtx-502.2, 105meter, 0.53mmID, 3um df. Trap used for VPH analysis is CarboSieve B/CarboSieveS-III.

SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for "difficult analytes" where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for "difficult analytes" listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 (8-9)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	2.9	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.029	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Benzene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Bromobenzene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Bromochloromethane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Bromodichloromethane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Bromoform	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Bromomethane	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
2-Butanone (MEK)	ND	1.2	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
n-Butylbenzene	2.2	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
sec-Butylbenzene	0.34	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
tert-Butylbenzene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.029	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Carbon Disulfide	ND	0.59	mg/Kg dry	1	RL-07	SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Carbon Tetrachloride	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Chlorobenzene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Chlorodibromomethane	ND	0.029	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Chloroethane	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Chloroform	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Chloromethane	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
2-Chlorotoluene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
4-Chlorotoluene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.24	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,2-Dibromoethane (EDB)	ND	0.029	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Dibromomethane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,2-Dichlorobenzene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,3-Dichlorobenzene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,4-Dichlorobenzene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,1-Dichloroethane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,2-Dichloroethane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,1-Dichloroethylene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
cis-1,2-Dichloroethylene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
trans-1,2-Dichloroethylene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,2-Dichloropropane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,3-Dichloropropane	ND	0.029	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
2,2-Dichloropropane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,1-Dichloropropene	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
cis-1,3-Dichloropropene	ND	0.029	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
trans-1,3-Dichloropropene	ND	0.029	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Diethyl Ether	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Diisopropyl Ether (DIPE)	ND	0.029	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,4-Dioxane	ND	2.9	mg/Kg dry	1	V-16	SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Ethylbenzene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 (8-9)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
2-Hexanone (MBK)	ND	0.59	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Isopropylbenzene (Cumene)	0.068	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
p-Isopropyltoluene (p-Cymene)	0.20	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Methylene Chloride	ND	0.29	mg/Kg dry	1	RL-07	SW-846 8260C	6/17/19	6/19/19 9:39	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.59	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Naphthalene	0.19	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
n-Propylbenzene	0.39	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Styrene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,1,1,2-Tetrachloroethane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,1,2,2-Tetrachloroethane	ND	0.029	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Tetrachloroethylene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Tetrahydrofuran	ND	0.24	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Toluene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,2,3-Trichlorobenzene	ND	0.24	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,2,4-Trichlorobenzene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,1,1-Trichloroethane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,1,2-Trichloroethane	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Trichloroethylene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Trichlorofluoromethane (Freon 11)	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,2,3-Trichloropropane	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,2,4-Trimethylbenzene	1.7	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
1,3,5-Trimethylbenzene	0.60	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
Vinyl Chloride	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
m+p Xylene	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF
o-Xylene	ND	0.059	mg/Kg dry	1		SW-846 8260C	6/17/19	6/19/19 9:39	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	95.5	70-130	
Toluene-d8	97.4	70-130	
4-Bromofluorobenzene	108	70-130	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 (8-9)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Unadjusted C11-C22 Aromatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
C11-C22 Aromatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Benzo(a)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Benzo(a)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Benzo(b)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Benzo(g,h,i)perylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Benzo(k)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Chrysene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Dibenz(a,h)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Indeno(1,2,3-cd)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Phenanthrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB
Pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:14	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	64.6	40-140	
o-Terphenyl (OTP)	75.8	40-140	
2-Bromonaphthalene	101	40-140	
2-Fluorobiphenyl	106	40-140	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 (8-9)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.10

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	140	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
C5-C8 Aliphatics	140	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
Unadjusted C9-C12 Aliphatics	160	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
C9-C12 Aliphatics	99	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
C9-C10 Aromatics	59	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
Benzene	0.071	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
Ethylbenzene	0.21	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
Naphthalene	0.30	0.30	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
Toluene	0.076	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
m+p Xylene	0.15	0.12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
o-Xylene	0.17	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:09	EEH
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	116	70-130							
2,5-Dibromotoluene (PID)	125	70-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Sampled: 6/14/2019 09:00

Field Sample #: B1 (8-9)

Sample ID: 19F0857-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.7		% Wt	1		SM 2540G	6/17/19	6/18/19 6:35	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 Comp (0-10)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Acenaphthylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Acetophenone	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Aniline	ND	0.39	mg/Kg dry	1	V-34	SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Benzo(a)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Benzo(a)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Benzo(b)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Benzo(g,h,i)perylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Benzo(k)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Bis(2-chloroethoxy)methane	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Bis(2-chloroethyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Bis(2-chloroisopropyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Bis(2-Ethylhexyl)phthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
4-Bromophenylphenylether	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Butylbenzylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
4-Chloroaniline	ND	0.76	mg/Kg dry	1	V-34	SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2-Chloronaphthalene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2-Chlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Chrysene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Dibenz(a,h)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Dibenzofuran	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Di-n-butylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
1,2-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
1,3-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
1,4-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
3,3-Dichlorobenzidine	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2,4-Dichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Diethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2,4-Dimethylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Dimethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2,4-Dinitrophenol	ND	0.76	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2,4-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2,6-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Di-n-octylphthalate	ND	0.39	mg/Kg dry	1	V-05	SW-846 8270D	6/17/19	6/18/19 16:16	IMR
1,2-Diphenylhydrazine/Azobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Fluorene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Hexachlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Hexachlorobutadiene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Hexachloroethane	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Indeno(1,2,3-cd)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Isophorone	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2-Methylnaphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 Comp (0-10)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
3/4-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Naphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Nitrobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2-Nitrophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
4-Nitrophenol	ND	0.76	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Pentachlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Phenanthrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Phenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
1,2,4-Trichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2,4,5-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
2,4,6-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:16	IMR
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2-Fluorophenol	62.6	30-130						6/18/19 16:16	
Phenol-d6	67.4	30-130						6/18/19 16:16	
Nitrobenzene-d5	63.5	30-130						6/18/19 16:16	
2-Fluorobiphenyl	70.9	30-130						6/18/19 16:16	
2,4,6-Tribromophenol	78.9	30-130						6/18/19 16:16	
p-Terphenyl-d14	88.4	30-130						6/18/19 16:16	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 Comp (0-10)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-02

Sample Matrix: Soil

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 12:52	PJG
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 12:52	PJG
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 12:52	PJG
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 12:52	PJG
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 12:52	PJG
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 12:52	PJG
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 12:52	PJG
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 12:52	PJG
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 12:52	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	88.8	30-150							
Decachlorobiphenyl [2]	92.2	30-150							
Tetrachloro-m-xylene [1]	83.3	30-150							
Tetrachloro-m-xylene [2]	78.3	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 Comp (0-10)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	51	9.5	mg/Kg dry	1		SW-846 8100 Modified	6/17/19	6/20/19 22:53	KLB
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
2-Fluorobiphenyl	53.2	40-140						6/20/19 22:53	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 Comp (0-10)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	9.8	1.9	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:48	EJB
Barium	21	1.9	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:48	EJB
Cadmium	0.57	0.19	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:48	EJB
Chromium	13	0.39	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:48	EJB
Lead	17	0.58	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:48	EJB
Mercury	0.038	0.028	mg/Kg dry	1		SW-846 7471B	6/18/19	6/19/19 12:10	AJL
Selenium	ND	3.9	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:48	EJB
Silver	ND	0.39	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:48	EJB

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B1 Comp (0-10)

Sampled: 6/14/2019 09:00

Sample ID: 19F0857-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.1		% Wt	1		SM 2540G	6/17/19	6/18/19 6:35	JDN
Ignitability	Absent		present/absent	1		SW-846 1030	6/16/19	6/16/19 12:45	KMV
pH @20.5°C	8.4		pH Units	1		SW-846 9045C	6/14/19	6/14/19 21:45	MG2
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	6/16/19	6/17/19 17:00	EC
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	6/16/19	6/17/19 15:50	EC
Specific conductance	11	2.0	µmhos/cm	1		SM21-22 2510B Modified	6/15/19	6/15/19 13:30	KMV

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B6 (8-9)

Sampled: 6/14/2019 12:00

Sample ID: 19F0857-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.12	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Benzene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Bromobenzene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Bromochloromethane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Bromodichloromethane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Bromoform	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Bromomethane	ND	0.012	mg/Kg dry	1	V-34	SW-846 8260C	6/17/19	6/17/19 14:07	MFF
2-Butanone (MEK)	ND	0.046	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
n-Butylbenzene	0.018	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
sec-Butylbenzene	0.0038	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
tert-Butylbenzene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Carbon Disulfide	ND	0.0069	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Carbon Tetrachloride	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Chlorobenzene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Chlorodibromomethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Chloroethane	ND	0.012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Chloroform	ND	0.0046	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Chloromethane	ND	0.012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
2-Chlorotoluene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
4-Chlorotoluene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,2-Dibromoethane (EDB)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Dibromomethane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,2-Dichlorobenzene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,3-Dichlorobenzene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,4-Dichlorobenzene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,1-Dichloroethane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,2-Dichloroethane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,1-Dichloroethylene	ND	0.0046	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
cis-1,2-Dichloroethylene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
trans-1,2-Dichloroethylene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,2-Dichloropropane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,3-Dichloropropane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
2,2-Dichloropropane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,1-Dichloropropene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
cis-1,3-Dichloropropene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
trans-1,3-Dichloropropene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Diethyl Ether	ND	0.012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Diisopropyl Ether (DIPE)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,4-Dioxane	ND	0.12	mg/Kg dry	1	V-16	SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Ethylbenzene	0.058	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B6 (8-9)

Sampled: 6/14/2019 12:00

Sample ID: 19F0857-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
2-Hexanone (MBK)	ND	0.023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Isopropylbenzene (Cumene)	0.0096	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
p-Isopropyltoluene (p-Cymene)	0.0028	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0046	mg/Kg dry	1	V-05	SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Methylene Chloride	ND	0.012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Naphthalene	0.078	0.0046	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
n-Propylbenzene	0.033	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Styrene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,1,1,2-Tetrachloroethane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,1,2,2-Tetrachloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Tetrachloroethylene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Tetrahydrofuran	ND	0.012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Toluene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,2,3-Trichlorobenzene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,2,4-Trichlorobenzene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,1,1-Trichloroethane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,1,2-Trichloroethane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Trichloroethylene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Trichlorofluoromethane (Freon 11)	ND	0.012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,2,3-Trichloropropane	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
1,2,4-Trimethylbenzene	2.0	0.15	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 9:13	MFF
1,3,5-Trimethylbenzene	0.067	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
Vinyl Chloride	ND	0.012	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
m+p Xylene	0.22	0.0046	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF
o-Xylene	ND	0.0023	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:07	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	96.1	70-130	
1,2-Dichloroethane-d4	95.6	70-130	
Toluene-d8	97.4	70-130	
Toluene-d8	100	70-130	
4-Bromofluorobenzene	106	70-130	
4-Bromofluorobenzene	103	70-130	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B6 (8-9)

Sampled: 6/14/2019 12:00

Sample ID: 19F0857-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
C19-C36 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Unadjusted C11-C22 Aromatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
C11-C22 Aromatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Acenaphthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Acenaphthylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Benzo(a)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Benzo(a)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Benzo(b)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Benzo(g,h,i)perylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Benzo(k)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Chrysene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Dibenz(a,h)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Fluorene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Indeno(1,2,3-cd)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
2-Methylnaphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Naphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Phenanthrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:33	KLB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Chlorooctadecane (COD)	65.8	40-140							
o-Terphenyl (OTP)	69.3	40-140							
2-Bromonaphthalene	86.9	40-140							
2-Fluorobiphenyl	91.0	40-140							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B6 (8-9)

Sampled: 6/14/2019 12:00

Sample ID: 19F0857-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.19

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	18	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
C5-C8 Aliphatics	18	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
Unadjusted C9-C12 Aliphatics	24	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
C9-C10 Aromatics	15	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
Benzene	0.068	0.062	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
Ethylbenzene	0.48	0.062	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.062	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
Naphthalene	0.40	0.31	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
Toluene	ND	0.062	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
m+p Xylene	1.8	0.12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
o-Xylene	0.17	0.062	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 17:38	EEH
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	112	70-130							
2,5-Dibromotoluene (PID)	106	70-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B6 (8-9)

Sampled: 6/14/2019 12:00

Sample ID: 19F0857-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	82.3		% Wt	1		SM 2540G	6/17/19	6/18/19 6:35	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 (8-9)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-04

Sample Matrix: Soil

Sample Flags: RL-05

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	7.8	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.078	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Benzene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Bromobenzene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Bromochloromethane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Bromodichloromethane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Bromoform	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Bromomethane	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
2-Butanone (MEK)	ND	3.1	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
n-Butylbenzene	0.62	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
sec-Butylbenzene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
tert-Butylbenzene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.078	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Carbon Disulfide	ND	1.6	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Carbon Tetrachloride	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Chlorobenzene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Chlorodibromomethane	ND	0.078	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Chloroethane	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Chloroform	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Chloromethane	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
2-Chlorotoluene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
4-Chlorotoluene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.63	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,2-Dibromoethane (EDB)	ND	0.078	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Dibromomethane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,2-Dichlorobenzene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,3-Dichlorobenzene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,4-Dichlorobenzene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,1-Dichloroethane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,2-Dichloroethane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,1-Dichloroethylene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
cis-1,2-Dichloroethylene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
trans-1,2-Dichloroethylene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,2-Dichloropropane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,3-Dichloropropane	ND	0.078	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
2,2-Dichloropropane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,1-Dichloropropene	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
cis-1,3-Dichloropropene	ND	0.078	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
trans-1,3-Dichloropropene	ND	0.078	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Diethyl Ether	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Diisopropyl Ether (DIPE)	ND	0.078	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,4-Dioxane	ND	7.8	mg/Kg dry	2	V-16	SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Ethylbenzene	0.46	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 (8-9)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-04

Sample Matrix: Soil

Sample Flags: RL-05

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
2-Hexanone (MBK)	ND	1.6	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Isopropylbenzene (Cumene)	0.23	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Methylene Chloride	ND	0.78	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
4-Methyl-2-pentanone (MIBK)	ND	1.6	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Naphthalene	1.1	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
n-Propylbenzene	0.78	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Styrene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,1,1,2-Tetrachloroethane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,1,2,2-Tetrachloroethane	ND	0.078	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Tetrachloroethylene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Tetrahydrofuran	ND	0.63	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Toluene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,2,3-Trichlorobenzene	ND	0.63	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,2,4-Trichlorobenzene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,1,1-Trichloroethane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,1,2-Trichloroethane	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Trichloroethylene	ND	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Trichlorofluoromethane (Freon 11)	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,2,3-Trichloropropane	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,2,4-Trimethylbenzene	8.8	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
1,3,5-Trimethylbenzene	3.0	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
Vinyl Chloride	ND	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
m+p Xylene	3.9	0.31	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF
o-Xylene	2.4	0.16	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:06	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	96.0	70-130	6/19/19 10:06
Toluene-d8	98.1	70-130	6/19/19 10:06
4-Bromofluorobenzene	101	70-130	6/19/19 10:06

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 (8-9)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-04

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
C19-C36 Aliphatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Unadjusted C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Acenaphthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Acenaphthylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Benzo(a)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Benzo(a)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Benzo(b)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Benzo(g,h,i)perylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Benzo(k)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Chrysene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Dibenz(a,h)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Fluorene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Indeno(1,2,3-cd)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
2-Methylnaphthalene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Naphthalene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Phenanthrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB
Pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 3:52	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	73.4	40-140	
o-Terphenyl (OTP)	77.6	40-140	
2-Bromonaphthalene	90.4	40-140	
2-Fluorobiphenyl	95.5	40-140	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 (8-9)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-04

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.01

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	16	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
C5-C8 Aliphatics	ND	16	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
Unadjusted C9-C12 Aliphatics	17	16	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
C9-C12 Aliphatics	16	16	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
C9-C10 Aromatics	ND	16	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
Benzene	ND	0.078	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
Ethylbenzene	0.12	0.078	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.078	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
Naphthalene	ND	0.39	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
Toluene	ND	0.078	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
m+p Xylene	0.79	0.16	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
o-Xylene	0.48	0.078	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:08	EEH
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	112	70-130							
2,5-Dibromotoluene (PID)	108	70-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Sampled: 6/14/2019 12:30

Field Sample #: B7 (8-9)

Sample ID: 19F0857-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	78.0		% Wt	1		SM 2540G	6/17/19	6/18/19 6:35	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 Comp (0-10)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-05

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Acenaphthylene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Acetophenone	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Aniline	ND	0.46	mg/Kg dry	1	V-34	SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Anthracene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Benzo(a)anthracene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Benzo(a)pyrene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Benzo(b)fluoranthene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Benzo(g,h,i)perylene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Benzo(k)fluoranthene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Bis(2-chloroethoxy)methane	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Bis(2-chloroethyl)ether	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Bis(2-chloroisopropyl)ether	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Bis(2-Ethylhexyl)phthalate	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
4-Bromophenylphenylether	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Butylbenzylphthalate	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
4-Chloroaniline	ND	0.90	mg/Kg dry	1	V-34	SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2-Chloronaphthalene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2-Chlorophenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Chrysene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Dibenz(a,h)anthracene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Dibenzofuran	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Di-n-butylphthalate	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
1,2-Dichlorobenzene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
1,3-Dichlorobenzene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
1,4-Dichlorobenzene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
3,3-Dichlorobenzidine	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2,4-Dichlorophenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Diethylphthalate	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2,4-Dimethylphenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Dimethylphthalate	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2,4-Dinitrophenol	ND	0.90	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2,4-Dinitrotoluene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2,6-Dinitrotoluene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Di-n-octylphthalate	ND	0.46	mg/Kg dry	1	V-05	SW-846 8270D	6/17/19	6/18/19 16:42	IMR
1,2-Diphenylhydrazine/Azobenzene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Fluoranthene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Fluorene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Hexachlorobenzene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Hexachlorobutadiene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Hexachloroethane	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Indeno(1,2,3-cd)pyrene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Isophorone	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2-Methylnaphthalene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 Comp (0-10)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-05

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
3/4-Methylphenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Naphthalene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Nitrobenzene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2-Nitrophenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
4-Nitrophenol	ND	0.90	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Pentachlorophenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Phenanthrene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Phenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Pyrene	ND	0.23	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
1,2,4-Trichlorobenzene	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2,4,5-Trichlorophenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
2,4,6-Trichlorophenol	ND	0.46	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 16:42	IMR
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2-Fluorophenol	50.8	30-130							
Phenol-d6	51.0	30-130							
Nitrobenzene-d5	52.7	30-130							
2-Fluorobiphenyl	55.0	30-130							
2,4,6-Tribromophenol	60.9	30-130							
p-Terphenyl-d14	68.9	30-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 Comp (0-10)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-05

Sample Matrix: Soil

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:04	PJG
Aroclor-1221 [1]	ND	0.20	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:04	PJG
Aroclor-1232 [1]	ND	0.20	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:04	PJG
Aroclor-1242 [1]	ND	0.20	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:04	PJG
Aroclor-1248 [1]	ND	0.20	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:04	PJG
Aroclor-1254 [1]	ND	0.20	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:04	PJG
Aroclor-1260 [1]	ND	0.20	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:04	PJG
Aroclor-1262 [1]	ND	0.20	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:04	PJG
Aroclor-1268 [1]	ND	0.20	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:04	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	99.0	30-150						6/26/19 13:04	
Decachlorobiphenyl [2]	109	30-150						6/26/19 13:04	
Tetrachloro-m-xylene [1]	90.0	30-150						6/26/19 13:04	
Tetrachloro-m-xylene [2]	85.2	30-150						6/26/19 13:04	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 Comp (0-10)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-05

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	36	11	mg/Kg dry	1		SW-846 8100 Modified	6/17/19	6/20/19 22:33	KLB
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
2-Fluorobiphenyl	42.9	40-140						6/20/19 22:33	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 Comp (0-10)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	13	2.2	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:56	EJB
Barium	33	2.2	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:56	EJB
Cadmium	0.49	0.22	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:56	EJB
Chromium	17	0.44	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:56	EJB
Lead	9.1	0.66	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:56	EJB
Mercury	ND	0.034	mg/Kg dry	1		SW-846 7471B	6/18/19	6/19/19 12:16	AJL
Selenium	ND	4.4	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:56	EJB
Silver	ND	0.44	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 13:56	EJB

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B7 Comp (0-10)

Sampled: 6/14/2019 12:30

Sample ID: 19F0857-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	73.0		% Wt	1		SM 2540G	6/17/19	6/18/19 6:35	JDN
Ignitability	Absent		present/absent	1		SW-846 1030	6/16/19	6/16/19 12:45	KMV
pH @20.5°C	7.7		pH Units	1		SW-846 9045C	6/14/19	6/14/19 21:45	MG2
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	6/16/19	6/17/19 17:00	EC
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	6/16/19	6/17/19 15:50	EC
Specific conductance	12	2.0	µmhos/cm	1		SM21-22 2510B Modified	6/15/19	6/15/19 13:30	KMV

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 (8-9)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-06

Sample Matrix: Soil

Sample Flags: RL-05

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	6.9	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.069	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Benzene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Bromobenzene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Bromochloromethane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Bromodichloromethane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Bromoform	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Bromomethane	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
2-Butanone (MEK)	ND	2.7	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
n-Butylbenzene	3.2	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
sec-Butylbenzene	0.50	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
tert-Butylbenzene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.069	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Carbon Disulfide	ND	1.4	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Carbon Tetrachloride	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Chlorobenzene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Chlorodibromomethane	ND	0.069	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Chloroethane	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Chloroform	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Chloromethane	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
2-Chlorotoluene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
4-Chlorotoluene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.55	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,2-Dibromoethane (EDB)	ND	0.069	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Dibromomethane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,2-Dichlorobenzene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,3-Dichlorobenzene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,4-Dichlorobenzene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,1-Dichloroethane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,2-Dichloroethane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,1-Dichloroethylene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
cis-1,2-Dichloroethylene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
trans-1,2-Dichloroethylene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,2-Dichloropropane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,3-Dichloropropane	ND	0.069	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
2,2-Dichloropropane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,1-Dichloropropene	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
cis-1,3-Dichloropropene	ND	0.069	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
trans-1,3-Dichloropropene	ND	0.069	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Diethyl Ether	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Diisopropyl Ether (DIPE)	ND	0.069	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,4-Dioxane	ND	6.9	mg/Kg dry	2	V-16	SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Ethylbenzene	1.4	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 (8-9)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-06

Sample Matrix: Soil

Sample Flags: RL-05

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
2-Hexanone (MBK)	ND	1.4	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Isopropylbenzene (Cumene)	0.59	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
p-Isopropyltoluene (p-Cymene)	0.36	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Methylene Chloride	ND	0.69	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
4-Methyl-2-pentanone (MIBK)	ND	1.4	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Naphthalene	3.7	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
n-Propylbenzene	2.7	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Styrene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,1,1,2-Tetrachloroethane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,1,2,2-Tetrachloroethane	ND	0.069	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Tetrachloroethylene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Tetrahydrofuran	ND	0.55	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Toluene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,2,3-Trichlorobenzene	ND	0.55	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,2,4-Trichlorobenzene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,1,1-Trichloroethane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,1,2-Trichloroethane	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Trichloroethylene	ND	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Trichlorofluoromethane (Freon 11)	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,2,3-Trichloropropane	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,2,4-Trimethylbenzene	19	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
1,3,5-Trimethylbenzene	6.8	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
Vinyl Chloride	ND	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
m+p Xylene	7.2	0.27	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF
o-Xylene	2.1	0.14	mg/Kg dry	2		SW-846 8260C	6/17/19	6/19/19 10:32	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	94.9	70-130	6/19/19 10:32
Toluene-d8	98.1	70-130	6/19/19 10:32
4-Bromofluorobenzene	105	70-130	6/19/19 10:32

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 (8-9)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-06

Sample Matrix: Soil

Petrolium Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	34	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Unadjusted C11-C22 Aromatics	71	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
C11-C22 Aromatics	69	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Benzo(a)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Benzo(a)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Benzo(b)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Benzo(g,h,i)perylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Benzo(k)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Chrysene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Dibenz(a,h)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Indeno(1,2,3-cd)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
2-Methylnaphthalene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Naphthalene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Phenanthrene	0.14	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB
Pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:03	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	76.7	40-140	
o-Terphenyl (OTP)	75.6	40-140	
2-Bromonaphthalene	94.2	40-140	
2-Fluorobiphenyl	102	40-140	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 (8-9)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-06

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.13

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	160	57	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
C5-C8 Aliphatics	160	57	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
Unadjusted C9-C12 Aliphatics	460	57	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
C9-C12 Aliphatics	190	57	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
C9-C10 Aromatics	260	57	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
Benzene	ND	0.29	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
Ethylbenzene	1.1	0.29	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.29	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
Naphthalene	3.5	1.4	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
Toluene	ND	0.29	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
m+p Xylene	7.8	0.57	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
o-Xylene	4.3	0.29	mg/Kg dry	5		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 19:36	EEH
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
2,5-Dibromotoluene (FID)	141	*	70-130				6/17/19 19:36		
2,5-Dibromotoluene (PID)	145	*	70-130				6/17/19 19:36		

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 (8-9)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.3		% Wt	1		SM 2540G	6/17/19	6/18/19 6:35	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 Comp (5-10)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-07

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Acenaphthylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Acetophenone	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Aniline	ND	0.39	mg/Kg dry	1	V-34	SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Benzo(a)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Benzo(a)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Benzo(b)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Benzo(g,h,i)perylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Benzo(k)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Bis(2-chloroethoxy)methane	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Bis(2-chloroethyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Bis(2-chloroisopropyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Bis(2-Ethylhexyl)phthalate	2.3	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
4-Bromophenylphenylether	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Butylbenzylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
4-Chloroaniline	ND	0.75	mg/Kg dry	1	V-34	SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2-Chloronaphthalene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2-Chlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Chrysene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Dibenz(a,h)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Dibenzofuran	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Di-n-butylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
1,2-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
1,3-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
1,4-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
3,3-Dichlorobenzidine	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2,4-Dichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Diethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2,4-Dimethylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Dimethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2,4-Dinitrophenol	ND	0.75	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2,4-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2,6-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Di-n-octylphthalate	ND	0.39	mg/Kg dry	1	V-05	SW-846 8270D	6/17/19	6/18/19 17:08	IMR
1,2-Diphenylhydrazine/Azobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Fluoranthene	0.25	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Fluorene	0.52	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Hexachlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Hexachlorobutadiene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Hexachloroethane	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Indeno(1,2,3-cd)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Isophorone	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2-Methylnaphthalene	33	1.9	mg/Kg dry	10		SW-846 8270D	6/17/19	6/19/19 10:42	IMR

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 Comp (5-10)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-07

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
3/4-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Naphthalene	29	1.9	mg/Kg dry	10		SW-846 8270D	6/17/19	6/19/19 10:42	IMR
Nitrobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2-Nitrophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
4-Nitrophenol	ND	0.75	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Pentachlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Phenanthrene	0.89	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Phenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Pyrene	0.53	0.19	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
1,2,4-Trichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2,4,5-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
2,4,6-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	6/17/19	6/18/19 17:08	IMR
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2-Fluorophenol	55.6	30-130						6/18/19 17:08	
2-Fluorophenol	72.6	30-130						6/19/19 10:42	
Phenol-d6	56.5	30-130						6/18/19 17:08	
Phenol-d6	80.8	30-130						6/19/19 10:42	
Nitrobenzene-d5	79.7	30-130						6/18/19 17:08	
Nitrobenzene-d5	104	30-130						6/19/19 10:42	
2-Fluorobiphenyl	80.0	30-130						6/18/19 17:08	
2-Fluorobiphenyl	88.4	30-130						6/19/19 10:42	
2,4,6-Tribromophenol	102	30-130						6/18/19 17:08	
2,4,6-Tribromophenol	79.7	30-130						6/19/19 10:42	
p-Terphenyl-d14	103	30-130						6/18/19 17:08	
p-Terphenyl-d14	92.0	30-130						6/19/19 10:42	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 Comp (5-10)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-07

Sample Matrix: Soil

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.17	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:17	PJG
Aroclor-1221 [1]	ND	0.17	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:17	PJG
Aroclor-1232 [1]	ND	0.17	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:17	PJG
Aroclor-1242 [1]	ND	0.17	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:17	PJG
Aroclor-1248 [1]	0.25	0.17	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:17	PJG
Aroclor-1254 [1]	ND	0.17	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:17	PJG
Aroclor-1260 [1]	ND	0.17	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:17	PJG
Aroclor-1262 [1]	ND	0.17	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:17	PJG
Aroclor-1268 [1]	ND	0.17	mg/Kg dry	4		SW-846 8082A	6/25/19	6/26/19 13:17	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	79.8	30-150							
Decachlorobiphenyl [2]	88.9	30-150							
Tetrachloro-m-xylene [1]	86.0	30-150							
Tetrachloro-m-xylene [2]	79.1	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 Comp (5-10)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-07

Sample Matrix: Soil

Petrolium Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	8500	1900	mg/Kg dry	200		SW-846 8100 Modified	6/17/19	6/21/19 8:41	KLB
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
2-Fluorobiphenyl	*		40-140		S-01			6/21/19 8:41	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 Comp (5-10)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-07

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	4.4	1.8	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 14:02	EJB
Barium	33	1.8	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 14:02	EJB
Cadmium	0.19	0.18	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 14:02	EJB
Chromium	15	0.37	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 14:02	EJB
Lead	20	0.55	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 14:02	EJB
Mercury	ND	0.027	mg/Kg dry	1		SW-846 7471B	6/18/19	6/19/19 12:18	AJL
Selenium	ND	3.7	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 14:02	EJB
Silver	ND	0.37	mg/Kg dry	1		SW-846 6010D	6/19/19	6/20/19 14:02	EJB

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B9 Comp (5-10)

Sampled: 6/14/2019 13:00

Sample ID: 19F0857-07

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.9		% Wt	1		SM 2540G	6/17/19	6/18/19 6:35	JDN
Ignitability	Absent		present/absent	1		SW-846 1030	6/16/19	6/16/19 12:45	KMV
pH @20.8°C	7.2		pH Units	1		SW-846 9045C	6/14/19	6/14/19 21:45	MG2
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	6/16/19	6/17/19 17:00	EC
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	6/16/19	6/17/19 15:50	EC
Specific conductance	4.7	2.0	µmhos/cm	1		SM21-22 2510B Modified	6/15/19	6/15/19 13:30	KMV

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B12 (8-9)

Sampled: 6/14/2019 13:30

Sample ID: 19F0857-08

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.22	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Benzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Bromobenzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Bromochloromethane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Bromodichloromethane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Bromoform	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Bromomethane	ND	0.022	mg/Kg dry	1	V-34	SW-846 8260C	6/17/19	6/17/19 14:31	MFF
2-Butanone (MEK)	ND	0.087	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
n-Butylbenzene	0.0049	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
sec-Butylbenzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
tert-Butylbenzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Carbon Disulfide	ND	0.013	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Carbon Tetrachloride	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Chlorobenzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Chlorodibromomethane	ND	0.0022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Chloroethane	ND	0.022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Chloroform	ND	0.0087	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Chloromethane	ND	0.022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
2-Chlorotoluene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
4-Chlorotoluene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,2-Dibromoethane (EDB)	ND	0.0022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Dibromomethane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,2-Dichlorobenzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,3-Dichlorobenzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,4-Dichlorobenzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,1-Dichloroethane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,2-Dichloroethane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,1-Dichloroethylene	ND	0.0087	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
cis-1,2-Dichloroethylene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
trans-1,2-Dichloroethylene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,2-Dichloropropane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,3-Dichloropropane	ND	0.0022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
2,2-Dichloropropane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,1-Dichloropropene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
cis-1,3-Dichloropropene	ND	0.0022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
trans-1,3-Dichloropropene	ND	0.0022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Diethyl Ether	ND	0.022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Diisopropyl Ether (DIPE)	ND	0.0022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,4-Dioxane	ND	0.22	mg/Kg dry	1	V-16	SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Ethylbenzene	0.053	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B12 (8-9)

Sampled: 6/14/2019 13:30

Sample ID: 19F0857-08

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
2-Hexanone (MBK)	ND	0.043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Isopropylbenzene (Cumene)	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0087	mg/Kg dry	1	V-05	SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Methylene Chloride	ND	0.022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Naphthalene	0.039	0.0087	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
n-Propylbenzene	0.012	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Styrene	0.0048	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,1,1,2-Tetrachloroethane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,1,2,2-Tetrachloroethane	ND	0.0022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Tetrachloroethylene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Tetrahydrofuran	ND	0.022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Toluene	0.0088	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,2,3-Trichlorobenzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,2,4-Trichlorobenzene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,1,1-Trichloroethane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,1,2-Trichloroethane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Trichloroethylene	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Trichlorofluoromethane (Freon 11)	ND	0.022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,2,3-Trichloropropane	ND	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,2,4-Trimethylbenzene	0.11	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
1,3,5-Trimethylbenzene	0.027	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
Vinyl Chloride	ND	0.022	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
m+p Xylene	0.32	0.0087	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF
o-Xylene	0.14	0.0043	mg/Kg dry	1		SW-846 8260C	6/17/19	6/17/19 14:31	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	100	70-130	
Toluene-d8	100	70-130	
4-Bromofluorobenzene	99.9	70-130	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B12 (8-9)

Sampled: 6/14/2019 13:30

Sample ID: 19F0857-08

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
C19-C36 Aliphatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Unadjusted C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Acenaphthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Acenaphthylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Benzo(a)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Benzo(a)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Benzo(b)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Benzo(g,h,i)perylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Benzo(k)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Chrysene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Dibenz(a,h)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Fluorene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Indeno(1,2,3-cd)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
2-Methylnaphthalene	0.13	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Naphthalene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Phenanthrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB
Pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/17/19	6/21/19 7:22	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	64.1	40-140	
o-Terphenyl (OTP)	68.0	40-140	
2-Bromonaphthalene	94.2	40-140	
2-Fluorobiphenyl	99.9	40-140	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B12 (8-9)

Sampled: 6/14/2019 13:30

Sample ID: 19F0857-08

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.10

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	14	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
C5-C8 Aliphatics	ND	14	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
Unadjusted C9-C12 Aliphatics	ND	14	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
C9-C12 Aliphatics	ND	14	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
C9-C10 Aromatics	ND	14	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
Benzene	ND	0.072	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
Ethylbenzene	0.48	0.072	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.072	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
Naphthalene	ND	0.36	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
Toluene	ND	0.072	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
m+p Xylene	2.8	0.14	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
o-Xylene	1.1	0.072	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/17/19	6/17/19 18:37	EEH
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	112	70-130							
2,5-Dibromotoluene (PID)	107	70-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St, Clinton, MA

Sample Description:

Work Order: 19F0857

Date Received: 6/14/2019

Field Sample #: B12 (8-9)

Sampled: 6/14/2019 13:30

Sample ID: 19F0857-08

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	78.7		% Wt	1		SM 2540G	6/17/19	6/18/19 6:36	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data**Prep Method: SW-846 3546-MADEP-EPH-04-1.1**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-01 [B1 (8-9)]	B233529	20.1	2.00	06/17/19
19F0857-03 [B6 (8-9)]	B233529	20.0	2.00	06/17/19
19F0857-04 [B7 (8-9)]	B233529	20.4	2.00	06/17/19
19F0857-06 [B9 (8-9)]	B233529	20.4	2.00	06/17/19
19F0857-08 [B12 (8-9)]	B233529	20.0	2.00	06/17/19

Prep Method: MA VPH-MADEP-VPH-Feb 2018 Rev 2.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-01 [B1 (8-9)]	B233483	5.50	5.70	06/17/19
19F0857-03 [B6 (8-9)]	B233483	5.90	6.00	06/17/19
19F0857-04 [B7 (8-9)]	B233483	5.00	6.10	06/17/19
19F0857-06 [B9 (8-9)]	B233483	5.70	5.70	06/17/19
19F0857-08 [B12 (8-9)]	B233483	5.50	6.20	06/17/19

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
19F0857-01 [B1 (8-9)]	B233513	06/17/19
19F0857-02 [B1 Comp (0-10)]	B233513	06/17/19
19F0857-03 [B6 (8-9)]	B233513	06/17/19
19F0857-04 [B7 (8-9)]	B233513	06/17/19
19F0857-05 [B7 Comp (0-10)]	B233513	06/17/19
19F0857-06 [B9 (8-9)]	B233513	06/17/19
19F0857-07 [B9 Comp (5-10)]	B233513	06/17/19
19F0857-08 [B12 (8-9)]	B233513	06/17/19

SM21-22 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
19F0857-02 [B1 Comp (0-10)]	B233432	1.00	06/15/19
19F0857-05 [B7 Comp (0-10)]	B233432	1.00	06/15/19
19F0857-07 [B9 Comp (5-10)]	B233432	1.00	06/15/19

SW-846 1030

Lab Number [Field ID]	Batch	Initial [g]	Date
19F0857-02 [B1 Comp (0-10)]	B233453	50.0	06/16/19
19F0857-05 [B7 Comp (0-10)]	B233453	50.0	06/16/19
19F0857-07 [B9 Comp (5-10)]	B233453	50.0	06/16/19

Prep Method: SW-846 3050B-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-02 [B1 Comp (0-10)]	B233722	1.48	50.0	06/19/19
19F0857-05 [B7 Comp (0-10)]	B233722	1.55	50.0	06/19/19
19F0857-07 [B9 Comp (5-10)]	B233722	1.56	50.0	06/19/19

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-02 [B1 Comp (0-10)]	B233608	0.618	50.0	06/18/19
19F0857-05 [B7 Comp (0-10)]	B233608	0.602	50.0	06/18/19
19F0857-07 [B9 Comp (5-10)]	B233608	0.626	50.0	06/18/19

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-02 [B1 Comp (0-10)]	B234079	10.3	10.0	06/25/19
19F0857-05 [B7 Comp (0-10)]	B234079	5.61	10.0	06/25/19
19F0857-07 [B9 Comp (5-10)]	B234079	5.34	10.0	06/25/19

Prep Method: SW-846 3546-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-02 [B1 Comp (0-10)]	B233487	30.1	1.00	06/17/19
19F0857-05 [B7 Comp (0-10)]	B233487	30.1	1.00	06/17/19
19F0857-07 [B9 Comp (5-10)]	B233487	30.1	1.00	06/17/19

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-03 [B6 (8-9)]	B233476	5.25	10.0	06/17/19
19F0857-08 [B12 (8-9)]	B233476	2.93	10.0	06/17/19

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Sample Amount(g)	Methanol Volume(mL)	Methanol Aliquot(mL)	Final Volume(mL)	Date
19F0857-01 [B1 (8-9)]	B233680	5.49	5.68	1	50	06/17/19
19F0857-03 [B6 (8-9)]	B233680	4.61	5.82	0.5	50	06/17/19
19F0857-04 [B7 (8-9)]	B233680	4.99	6.10	0.5	50	06/17/19
19F0857-06 [B9 (8-9)]	B233680	4.67	5.59	0.5	50	06/17/19

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-02 [B1 Comp (0-10)]	B233490	30.1	1.00	06/17/19
19F0857-05 [B7 Comp (0-10)]	B233490	30.1	1.00	06/17/19
19F0857-07 [B9 Comp (5-10)]	B233490	30.1	1.00	06/17/19
19F0857-07RE1 [B9 Comp (5-10)]	B233490	30.1	1.00	06/17/19

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-02 [B1 Comp (0-10)]	B233447	25.8	250	06/16/19
19F0857-05 [B7 Comp (0-10)]	B233447	25.3	250	06/16/19
19F0857-07 [B9 Comp (5-10)]	B233447	25.5	250	06/16/19

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F0857-02 [B1 Comp (0-10)]	B233446	25.8	250	06/16/19
19F0857-05 [B7 Comp (0-10)]	B233446	25.3	250	06/16/19
19F0857-07 [B9 Comp (5-10)]	B233446	25.5	250	06/16/19

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
19F0857-02 [B1 Comp (0-10)]	B233426	20.0	06/14/19
19F0857-05 [B7 Comp (0-10)]	B233426	20.0	06/14/19
19F0857-07 [B9 Comp (5-10)]	B233426	20.0	06/14/19

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233476 - SW-846 5035										
Blank (B233476-BLK1)				Prepared & Analyzed: 06/17/19						
Acetone	ND	0.10	mg/Kg wet							
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							V-16
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							V-05
Methylene Chloride	ND	0.010	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B233476 - SW-846 5035

Blank (B233476-BLK1)

Prepared & Analyzed: 06/17/19

n-Propylbenzene	ND	0.0020	mg/Kg wet							
Styrene	ND	0.0020	mg/Kg wet							
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet							
Tetrachloroethylene	ND	0.0020	mg/Kg wet							
Tetrahydrofuran	ND	0.010	mg/Kg wet							
Toluene	ND	0.0020	mg/Kg wet							
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet							
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet							
Trichloroethylene	ND	0.0020	mg/Kg wet							
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet							
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet							
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet							
Vinyl Chloride	ND	0.010	mg/Kg wet							
m+p Xylene	ND	0.0040	mg/Kg wet							
o-Xylene	ND	0.0020	mg/Kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0491		mg/Kg wet	0.0500		98.1	70-130			
Surrogate: Toluene-d8	0.0491		mg/Kg wet	0.0500		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.0506		mg/Kg wet	0.0500		101	70-130			

LCS (B233476-BS1)

Prepared & Analyzed: 06/17/19

Acetone	0.212	0.10	mg/Kg wet	0.200		106	40-160			†
tert-Amyl Methyl Ether (TAME)	0.0202	0.0010	mg/Kg wet	0.0200		101	70-130			
Benzene	0.0190	0.0020	mg/Kg wet	0.0200		95.1	70-130			
Bromobenzene	0.0194	0.0020	mg/Kg wet	0.0200		96.8	70-130			
Bromochloromethane	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130			
Bromodichloromethane	0.0186	0.0020	mg/Kg wet	0.0200		93.0	70-130			
Bromoform	0.0187	0.0020	mg/Kg wet	0.0200		93.4	70-130			
Bromomethane	0.0102	0.010	mg/Kg wet	0.0200		50.9	40-160	L-14, V-34		†
2-Butanone (MEK)	0.201	0.040	mg/Kg wet	0.200		101	40-160			†
n-Butylbenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.3	70-130			
sec-Butylbenzene	0.0198	0.0020	mg/Kg wet	0.0200		99.2	70-130			
tert-Butylbenzene	0.0190	0.0020	mg/Kg wet	0.0200		95.1	70-130			
tert-Butyl Ethyl Ether (TBEE)	0.0197	0.0010	mg/Kg wet	0.0200		98.7	70-130			
Carbon Disulfide	0.0220	0.0060	mg/Kg wet	0.0200		110	70-130			
Carbon Tetrachloride	0.0191	0.0020	mg/Kg wet	0.0200		95.7	70-130			
Chlorobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130			
Chlorodibromomethane	0.0193	0.0010	mg/Kg wet	0.0200		96.6	70-130			
Chloroethane	0.0181	0.010	mg/Kg wet	0.0200		90.3	70-130			
Chloroform	0.0184	0.0040	mg/Kg wet	0.0200		92.1	70-130			
Chloromethane	0.0174	0.010	mg/Kg wet	0.0200		87.1	40-160			†
2-Chlorotoluene	0.0195	0.0020	mg/Kg wet	0.0200		97.3	70-130			
4-Chlorotoluene	0.0194	0.0020	mg/Kg wet	0.0200		97.2	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	0.0183	0.0020	mg/Kg wet	0.0200		91.4	70-130			
1,2-Dibromoethane (EDB)	0.0201	0.0010	mg/Kg wet	0.0200		100	70-130			
Dibromomethane	0.0191	0.0020	mg/Kg wet	0.0200		95.5	70-130			
1,2-Dichlorobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.6	70-130			
1,3-Dichlorobenzene	0.0196	0.0020	mg/Kg wet	0.0200		98.2	70-130			
1,4-Dichlorobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.6	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233476 - SW-846 5035										
LCS (B233476-BS1)				Prepared & Analyzed: 06/17/19						
Dichlorodifluoromethane (Freon 12)	0.0195	0.010	mg/Kg wet	0.0200		97.7	40-160			†
1,1-Dichloroethane	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130			
1,2-Dichloroethane	0.0193	0.0020	mg/Kg wet	0.0200		96.7	70-130			
1,1-Dichloroethylene	0.0190	0.0040	mg/Kg wet	0.0200		95.2	70-130			
cis-1,2-Dichloroethylene	0.0190	0.0020	mg/Kg wet	0.0200		94.9	70-130			
trans-1,2-Dichloroethylene	0.0196	0.0020	mg/Kg wet	0.0200		98.1	70-130			
1,2-Dichloropropane	0.0193	0.0020	mg/Kg wet	0.0200		96.7	70-130			
1,3-Dichloropropane	0.0204	0.0010	mg/Kg wet	0.0200		102	70-130			
2,2-Dichloropropane	0.0188	0.0020	mg/Kg wet	0.0200		93.9	70-130			
1,1-Dichloropropene	0.0197	0.0020	mg/Kg wet	0.0200		98.3	70-130			
cis-1,3-Dichloropropene	0.0197	0.0010	mg/Kg wet	0.0200		98.3	70-130			
trans-1,3-Dichloropropene	0.0192	0.0010	mg/Kg wet	0.0200		96.1	70-130			
Diethyl Ether	0.0198	0.010	mg/Kg wet	0.0200		98.8	70-130			
Diisopropyl Ether (DIPE)	0.0199	0.0010	mg/Kg wet	0.0200		99.4	70-130			
1,4-Dioxane	0.201	0.10	mg/Kg wet	0.200		100	40-160			V-16 †
Ethylbenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130			
Hexachlorobutadiene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130			
2-Hexanone (MBK)	0.206	0.020	mg/Kg wet	0.200		103	40-160			†
Isopropylbenzene (Cumene)	0.0194	0.0020	mg/Kg wet	0.0200		97.0	70-130			
p-Isopropyltoluene (p-Cymene)	0.0195	0.0020	mg/Kg wet	0.0200		97.4	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0189	0.0040	mg/Kg wet	0.0200		94.5	70-130			V-05
Methylene Chloride	0.0192	0.010	mg/Kg wet	0.0200		95.9	70-130			
4-Methyl-2-pentanone (MIBK)	0.204	0.020	mg/Kg wet	0.200		102	40-160			†
Naphthalene	0.0191	0.0040	mg/Kg wet	0.0200		95.3	70-130			
n-Propylbenzene	0.0198	0.0020	mg/Kg wet	0.0200		99.0	70-130			
Styrene	0.0190	0.0020	mg/Kg wet	0.0200		95.0	70-130			
1,1,1,2-Tetrachloroethane	0.0200	0.0020	mg/Kg wet	0.0200		99.9	70-130			
1,1,2,2-Tetrachloroethane	0.0200	0.0010	mg/Kg wet	0.0200		100	70-130			
Tetrachloroethylene	0.0199	0.0020	mg/Kg wet	0.0200		99.4	70-130			
Tetrahydrofuran	0.0190	0.010	mg/Kg wet	0.0200		95.0	70-130			
Toluene	0.0192	0.0020	mg/Kg wet	0.0200		96.1	70-130			
1,2,3-Trichlorobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.4	70-130			
1,2,4-Trichlorobenzene	0.0185	0.0020	mg/Kg wet	0.0200		92.6	70-130			
1,1,1-Trichloroethane	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-130			
1,1,2-Trichloroethane	0.0193	0.0020	mg/Kg wet	0.0200		96.6	70-130			
Trichloroethylene	0.0182	0.0020	mg/Kg wet	0.0200		90.9	70-130			
Trichlorofluoromethane (Freon 11)	0.0175	0.010	mg/Kg wet	0.0200		87.7	70-130			
1,2,3-Trichloropropane	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130			
1,2,4-Trimethylbenzene	0.0184	0.0020	mg/Kg wet	0.0200		91.9	70-130			
1,3,5-Trimethylbenzene	0.0190	0.0020	mg/Kg wet	0.0200		95.0	70-130			
Vinyl Chloride	0.0174	0.010	mg/Kg wet	0.0200		87.0	70-130			
m+p Xylene	0.0385	0.0040	mg/Kg wet	0.0400		96.1	70-130			
o-Xylene	0.0197	0.0020	mg/Kg wet	0.0200		98.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0492		mg/Kg wet	0.0500		98.5	70-130			
Surrogate: Toluene-d8	0.0506		mg/Kg wet	0.0500		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.0493		mg/Kg wet	0.0500		98.5	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233476 - SW-846 5035										
LCS Dup (B233476-BSD1)				Prepared & Analyzed: 06/17/19						
Acetone	0.200	0.10	mg/Kg wet	0.200		100	40-160	5.67	20	†
tert-Amyl Methyl Ether (TAME)	0.0201	0.0010	mg/Kg wet	0.0200		101	70-130	0.0695	20	
Benzene	0.0193	0.0020	mg/Kg wet	0.0200		96.3	70-130	1.31	20	
Bromobenzene	0.0194	0.0020	mg/Kg wet	0.0200		96.8	70-130	0.0413	20	
Bromochloromethane	0.0215	0.0020	mg/Kg wet	0.0200		108	70-130	4.60	20	
Bromodichloromethane	0.0192	0.0020	mg/Kg wet	0.0200		96.2	70-130	3.32	20	
Bromoform	0.0187	0.0020	mg/Kg wet	0.0200		93.4	70-130	0.0214	20	
Bromomethane	0.0102	0.010	mg/Kg wet	0.0200		51.2	40-160	0.627	20	L-14, V-34 †
2-Butanone (MEK)	0.200	0.040	mg/Kg wet	0.200		100	40-160	0.428	20	†
n-Butylbenzene	0.0194	0.0020	mg/Kg wet	0.0200		97.2	70-130	2.97	20	
sec-Butylbenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130	4.64	20	
tert-Butylbenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.6	70-130	3.56	20	
tert-Butyl Ethyl Ether (TBEE)	0.0198	0.0010	mg/Kg wet	0.0200		98.9	70-130	0.223	20	
Carbon Disulfide	0.0220	0.0060	mg/Kg wet	0.0200		110	70-130	0.0182	20	
Carbon Tetrachloride	0.0191	0.0020	mg/Kg wet	0.0200		95.7	70-130	0.0522	20	
Chlorobenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.4	70-130	1.87	20	
Chlorodibromomethane	0.0189	0.0010	mg/Kg wet	0.0200		94.7	70-130	2.01	20	
Chloroethane	0.0184	0.010	mg/Kg wet	0.0200		92.2	70-130	2.14	20	
Chloroform	0.0185	0.0040	mg/Kg wet	0.0200		92.4	70-130	0.271	20	
Chloromethane	0.0173	0.010	mg/Kg wet	0.0200		86.5	40-160	0.726	20	†
2-Chlorotoluene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	3.73	20	
4-Chlorotoluene	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130	0.349	20	
1,2-Dibromo-3-chloropropane (DBCP)	0.0171	0.0020	mg/Kg wet	0.0200		85.7	70-130	6.49	20	
1,2-Dibromoethane (EDB)	0.0198	0.0010	mg/Kg wet	0.0200		99.1	70-130	1.23	20	
Dibromomethane	0.0196	0.0020	mg/Kg wet	0.0200		97.9	70-130	2.53	20	
1,2-Dichlorobenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	2.68	20	
1,3-Dichlorobenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	2.88	20	
1,4-Dichlorobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.4	70-130	1.85	20	
Dichlorodifluoromethane (Freon 12)	0.0206	0.010	mg/Kg wet	0.0200		103	40-160	5.04	20	†
1,1-Dichloroethane	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130	0.0102	20	
1,2-Dichloroethane	0.0188	0.0020	mg/Kg wet	0.0200		94.0	70-130	2.83	20	
1,1-Dichloroethylene	0.0193	0.0040	mg/Kg wet	0.0200		96.6	70-130	1.46	20	
cis-1,2-Dichloroethylene	0.0186	0.0020	mg/Kg wet	0.0200		92.9	70-130	2.14	20	
trans-1,2-Dichloroethylene	0.0194	0.0020	mg/Kg wet	0.0200		96.8	70-130	1.32	20	
1,2-Dichloropropane	0.0193	0.0020	mg/Kg wet	0.0200		96.6	70-130	0.0414	20	
1,3-Dichloropropane	0.0203	0.0010	mg/Kg wet	0.0200		102	70-130	0.344	20	
2,2-Dichloropropane	0.0186	0.0020	mg/Kg wet	0.0200		93.1	70-130	0.802	20	
1,1-Dichloropropene	0.0190	0.0020	mg/Kg wet	0.0200		95.2	70-130	3.20	20	
cis-1,3-Dichloropropene	0.0198	0.0010	mg/Kg wet	0.0200		99.0	70-130	0.770	20	
trans-1,3-Dichloropropene	0.0194	0.0010	mg/Kg wet	0.0200		96.8	70-130	0.684	20	
Diethyl Ether	0.0191	0.010	mg/Kg wet	0.0200		95.7	70-130	3.14	20	
Diisopropyl Ether (DIPE)	0.0197	0.0010	mg/Kg wet	0.0200		98.5	70-130	0.890	20	
1,4-Dioxane	0.205	0.10	mg/Kg wet	0.200		102	40-160	1.88	20	V-16 †
Ethylbenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130	0.0207	20	
Hexachlorobutadiene	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130	4.12	20	
2-Hexanone (MBK)	0.200	0.020	mg/Kg wet	0.200		99.9	40-160	3.09	20	†
Isopropylbenzene (Cumene)	0.0197	0.0020	mg/Kg wet	0.0200		98.7	70-130	1.79	20	
p-Isopropyltoluene (p-Cymene)	0.0200	0.0020	mg/Kg wet	0.0200		99.8	70-130	2.37	20	
Methyl tert-Butyl Ether (MTBE)	0.0183	0.0040	mg/Kg wet	0.0200		91.5	70-130	3.19	20	V-05
Methylene Chloride	0.0185	0.010	mg/Kg wet	0.0200		92.6	70-130	3.58	20	
4-Methyl-2-pentanone (MIBK)	0.202	0.020	mg/Kg wet	0.200		101	40-160	0.746	20	†
Naphthalene	0.0197	0.0040	mg/Kg wet	0.0200		98.6	70-130	3.38	20	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B233476 - SW-846 5035
LCS Dup (B233476-BSD1)

Prepared & Analyzed: 06/17/19

n-Propylbenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.4	70-130	1.57	20	
Styrene	0.0191	0.0020	mg/Kg wet	0.0200		95.7	70-130	0.702	20	
1,1,1,2-Tetrachloroethane	0.0200	0.0020	mg/Kg wet	0.0200		100	70-130	0.230	20	
1,1,2,2-Tetrachloroethane	0.0200	0.0010	mg/Kg wet	0.0200		99.9	70-130	0.130	20	
Tetrachloroethylene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130	2.97	20	
Tetrahydrofuran	0.0185	0.010	mg/Kg wet	0.0200		92.7	70-130	2.40	20	
Toluene	0.0193	0.0020	mg/Kg wet	0.0200		96.6	70-130	0.581	20	
1,2,3-Trichlorobenzene	0.0198	0.0020	mg/Kg wet	0.0200		98.9	70-130	2.56	20	
1,2,4-Trichlorobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130	5.14	20	
1,1,1-Trichloroethane	0.0192	0.0020	mg/Kg wet	0.0200		96.2	70-130	0.846	20	
1,1,2-Trichloroethane	0.0191	0.0020	mg/Kg wet	0.0200		95.7	70-130	0.905	20	
Trichloroethylene	0.0185	0.0020	mg/Kg wet	0.0200		92.7	70-130	1.95	20	
Trichlorofluoromethane (Freon 11)	0.0175	0.010	mg/Kg wet	0.0200		87.6	70-130	0.0571	20	
1,2,3-Trichloropropane	0.0199	0.0020	mg/Kg wet	0.0200		99.5	70-130	1.67	20	
1,2,4-Trimethylbenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.6	70-130	2.85	20	
1,3,5-Trimethylbenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130	2.60	20	
Vinyl Chloride	0.0178	0.010	mg/Kg wet	0.0200		89.1	70-130	2.45	20	
m+p Xylene	0.0391	0.0040	mg/Kg wet	0.0400		97.8	70-130	1.69	20	
o-Xylene	0.0195	0.0020	mg/Kg wet	0.0200		97.4	70-130	1.01	20	
Surrogate: 1,2-Dichloroethane-d4	0.0490		mg/Kg wet	0.0500		98.0	70-130			
Surrogate: Toluene-d8	0.0496		mg/Kg wet	0.0500		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.0491		mg/Kg wet	0.0500		98.1	70-130			

Batch B233680 - SW-846 5035
Blank (B233680-BLK1)

Prepared & Analyzed: 06/19/19

Acetone	ND	2.5	mg/Kg wet							
tert-Amyl Methyl Ether (TAME)	ND	0.025	mg/Kg wet							
Benzene	ND	0.050	mg/Kg wet							
Bromobenzene	ND	0.050	mg/Kg wet							
Bromochloromethane	ND	0.050	mg/Kg wet							
Bromodichloromethane	ND	0.050	mg/Kg wet							
Bromoform	ND	0.050	mg/Kg wet							
Bromomethane	ND	0.10	mg/Kg wet							
2-Butanone (MEK)	ND	1.0	mg/Kg wet							
n-Butylbenzene	ND	0.050	mg/Kg wet							
sec-Butylbenzene	ND	0.050	mg/Kg wet							
tert-Butylbenzene	ND	0.050	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.025	mg/Kg wet							
Carbon Disulfide	ND	0.50	mg/Kg wet							
Carbon Tetrachloride	ND	0.050	mg/Kg wet							
Chlorobenzene	ND	0.050	mg/Kg wet							
Chlorodibromomethane	ND	0.025	mg/Kg wet							
Chloroethane	ND	0.10	mg/Kg wet							
Chloroform	ND	0.10	mg/Kg wet							
Chloromethane	ND	0.10	mg/Kg wet							
2-Chlorotoluene	ND	0.050	mg/Kg wet							
4-Chlorotoluene	ND	0.050	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.20	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.025	mg/Kg wet							
Dibromomethane	ND	0.050	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.050	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.050	mg/Kg wet							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233680 - SW-846 5035										
Blank (B233680-BLK1)				Prepared & Analyzed: 06/19/19						
1,4-Dichlorobenzene	ND	0.050	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.10	mg/Kg wet							
1,1-Dichloroethane	ND	0.050	mg/Kg wet							
1,2-Dichloroethane	ND	0.050	mg/Kg wet							
1,1-Dichloroethylene	ND	0.050	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.050	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.050	mg/Kg wet							
1,2-Dichloropropane	ND	0.050	mg/Kg wet							
1,3-Dichloropropane	ND	0.025	mg/Kg wet							
2,2-Dichloropropane	ND	0.050	mg/Kg wet							
1,1-Dichloropropene	ND	0.10	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.025	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.025	mg/Kg wet							
Diethyl Ether	ND	0.10	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.025	mg/Kg wet							
1,4-Dioxane	ND	2.5	mg/Kg wet							V-16
Ethylbenzene	ND	0.050	mg/Kg wet							
Hexachlorobutadiene	ND	0.050	mg/Kg wet							
2-Hexanone (MBK)	ND	0.50	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.050	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.050	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/Kg wet							
Methylene Chloride	ND	0.25	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.50	mg/Kg wet							
Naphthalene	ND	0.10	mg/Kg wet							
n-Propylbenzene	ND	0.050	mg/Kg wet							
Styrene	ND	0.050	mg/Kg wet							
1,1,1,2-Tetrachloroethane	ND	0.050	mg/Kg wet							
1,1,2,2-Tetrachloroethane	ND	0.025	mg/Kg wet							
Tetrachloroethylene	ND	0.050	mg/Kg wet							
Tetrahydrofuran	ND	0.20	mg/Kg wet							
Toluene	ND	0.050	mg/Kg wet							
1,2,3-Trichlorobenzene	ND	0.20	mg/Kg wet							
1,2,4-Trichlorobenzene	ND	0.050	mg/Kg wet							
1,1,1-Trichloroethane	ND	0.050	mg/Kg wet							
1,1,2-Trichloroethane	ND	0.050	mg/Kg wet							
Trichloroethylene	ND	0.050	mg/Kg wet							
Trichlorofluoromethane (Freon 11)	ND	0.10	mg/Kg wet							
1,2,3-Trichloropropane	ND	0.10	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.050	mg/Kg wet							
1,3,5-Trimethylbenzene	ND	0.050	mg/Kg wet							
Vinyl Chloride	ND	0.10	mg/Kg wet							
m+p Xylene	ND	0.10	mg/Kg wet							
o-Xylene	ND	0.050	mg/Kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0237		mg/Kg wet	0.0250		94.7	70-130			
Surrogate: Toluene-d8	0.0246		mg/Kg wet	0.0250		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.0244		mg/Kg wet	0.0250		97.4	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233680 - SW-846 5035										
LCS (B233680-BS1)				Prepared & Analyzed: 06/19/19						
Acetone	0.122	0.057	mg/Kg wet	0.113		108	40-160			†
tert-Amyl Methyl Ether (TAME)	0.0114	0.00057	mg/Kg wet	0.0113		100	70-130			
Benzene	0.0116	0.0011	mg/Kg wet	0.0113		102	70-130			
Bromobenzene	0.0121	0.0011	mg/Kg wet	0.0113		107	70-130			
Bromochloromethane	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130			
Bromodichloromethane	0.0124	0.0011	mg/Kg wet	0.0113		109	70-130			
Bromoform	0.0135	0.0011	mg/Kg wet	0.0113		119	70-130			
Bromomethane	0.00874	0.0023	mg/Kg wet	0.0113		77.1	40-160			V-20 †
2-Butanone (MEK)	0.116	0.023	mg/Kg wet	0.113		102	40-160			†
n-Butylbenzene	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130			
sec-Butylbenzene	0.0122	0.0011	mg/Kg wet	0.0113		108	70-130			
tert-Butylbenzene	0.0117	0.0011	mg/Kg wet	0.0113		103	70-130			
tert-Butyl Ethyl Ether (TBEE)	0.0106	0.00057	mg/Kg wet	0.0113		93.7	70-130			
Carbon Disulfide	0.0137	0.011	mg/Kg wet	0.0113		121	70-130			
Carbon Tetrachloride	0.0111	0.0011	mg/Kg wet	0.0113		98.0	70-130			
Chlorobenzene	0.0128	0.0011	mg/Kg wet	0.0113		113	70-130			
Chlorodibromomethane	0.0122	0.00057	mg/Kg wet	0.0113		108	70-130			
Chloroethane	0.0119	0.0023	mg/Kg wet	0.0113		105	70-130			
Chloroform	0.0121	0.0023	mg/Kg wet	0.0113		106	70-130			
Chloromethane	0.0110	0.0023	mg/Kg wet	0.0113		97.5	40-160			V-20 †
2-Chlorotoluene	0.0123	0.0011	mg/Kg wet	0.0113		109	70-130			
4-Chlorotoluene	0.0129	0.0011	mg/Kg wet	0.0113		114	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	0.0133	0.0045	mg/Kg wet	0.0113		118	70-130			
1,2-Dibromoethane (EDB)	0.0127	0.00057	mg/Kg wet	0.0113		112	70-130			
Dibromomethane	0.0122	0.0011	mg/Kg wet	0.0113		107	70-130			
1,2-Dichlorobenzene	0.0124	0.0011	mg/Kg wet	0.0113		109	70-130			
1,3-Dichlorobenzene	0.0127	0.0011	mg/Kg wet	0.0113		112	70-130			
1,4-Dichlorobenzene	0.0122	0.0011	mg/Kg wet	0.0113		107	70-130			
Dichlorodifluoromethane (Freon 12)	0.0115	0.0023	mg/Kg wet	0.0113		102	40-160			†
1,1-Dichloroethane	0.0115	0.0011	mg/Kg wet	0.0113		101	70-130			
1,2-Dichloroethane	0.0116	0.0011	mg/Kg wet	0.0113		103	70-130			
1,1-Dichloroethylene	0.0124	0.0011	mg/Kg wet	0.0113		110	70-130			
cis-1,2-Dichloroethylene	0.0119	0.0011	mg/Kg wet	0.0113		105	70-130			
trans-1,2-Dichloroethylene	0.0112	0.0011	mg/Kg wet	0.0113		99.1	70-130			
1,2-Dichloropropane	0.0117	0.0011	mg/Kg wet	0.0113		104	70-130			
1,3-Dichloropropane	0.0115	0.00057	mg/Kg wet	0.0113		101	70-130			
2,2-Dichloropropane	0.0115	0.0011	mg/Kg wet	0.0113		101	70-130			
1,1-Dichloropropene	0.0116	0.0023	mg/Kg wet	0.0113		102	70-130			
cis-1,3-Dichloropropene	0.0116	0.00057	mg/Kg wet	0.0113		103	70-130			
trans-1,3-Dichloropropene	0.0120	0.00057	mg/Kg wet	0.0113		106	70-130			
Diethyl Ether	0.0117	0.0023	mg/Kg wet	0.0113		104	70-130			
Diisopropyl Ether (DIPE)	0.0109	0.00057	mg/Kg wet	0.0113		96.4	70-130			
1,4-Dioxane	0.122	0.057	mg/Kg wet	0.113		107	40-160			V-16 †
Ethylbenzene	0.0124	0.0011	mg/Kg wet	0.0113		109	70-130			
Hexachlorobutadiene	0.0131	0.0011	mg/Kg wet	0.0113		115	70-130			
2-Hexanone (MBK)	0.117	0.011	mg/Kg wet	0.113		103	40-160			†
Isopropylbenzene (Cumene)	0.0127	0.0011	mg/Kg wet	0.0113		112	70-130			
p-Isopropyltoluene (p-Cymene)	0.0120	0.0011	mg/Kg wet	0.0113		106	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0117	0.0011	mg/Kg wet	0.0113		103	70-130			
Methylene Chloride	0.0113	0.0057	mg/Kg wet	0.0113		99.6	70-130			
4-Methyl-2-pentanone (MIBK)	0.117	0.011	mg/Kg wet	0.113		103	40-160			†
Naphthalene	0.0128	0.0023	mg/Kg wet	0.0113		113	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233680 - SW-846 5035										
LCS (B233680-BS1)										
Prepared & Analyzed: 06/19/19										
n-Propylbenzene	0.0128	0.0011	mg/Kg wet	0.0113		113	70-130			
Styrene	0.0126	0.0011	mg/Kg wet	0.0113		111	70-130			
1,1,1,2-Tetrachloroethane	0.0132	0.0011	mg/Kg wet	0.0113		116	70-130			
1,1,2,2-Tetrachloroethane	0.0138	0.00057	mg/Kg wet	0.0113		122	70-130			
Tetrachloroethylene	0.0129	0.0011	mg/Kg wet	0.0113		114	70-130			
Tetrahydrofuran	0.0123	0.0045	mg/Kg wet	0.0113		108	70-130			
Toluene	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130			
1,2,3-Trichlorobenzene	0.0122	0.0045	mg/Kg wet	0.0113		108	70-130			
1,2,4-Trichlorobenzene	0.0121	0.0011	mg/Kg wet	0.0113		107	70-130			
1,1,1-Trichloroethane	0.0119	0.0011	mg/Kg wet	0.0113		105	70-130			
1,1,2-Trichloroethane	0.0126	0.0011	mg/Kg wet	0.0113		111	70-130			
Trichloroethylene	0.0120	0.0011	mg/Kg wet	0.0113		106	70-130			
Trichlorofluoromethane (Freon 11)	0.0113	0.0023	mg/Kg wet	0.0113		99.3	70-130			
1,2,3-Trichloropropane	0.0123	0.0023	mg/Kg wet	0.0113		108	70-130			
1,2,4-Trimethylbenzene	0.0115	0.0011	mg/Kg wet	0.0113		102	70-130			
1,3,5-Trimethylbenzene	0.0124	0.0011	mg/Kg wet	0.0113		110	70-130			
Vinyl Chloride	0.0107	0.0023	mg/Kg wet	0.0113		94.6	70-130			
m+p Xylene	0.0254	0.0023	mg/Kg wet	0.0227		112	70-130			
o-Xylene	0.0126	0.0011	mg/Kg wet	0.0113		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0274		mg/Kg wet	0.0283		96.8	70-130			
Surrogate: Toluene-d8	0.0276		mg/Kg wet	0.0283		97.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.0287		mg/Kg wet	0.0283		101	70-130			
LCS Dup (B233680-BSD1)										
Prepared & Analyzed: 06/19/19										
Acetone	0.115	0.057	mg/Kg wet	0.113		101	40-160	6.14	20	†
tert-Amyl Methyl Ether (TAME)	0.0112	0.00057	mg/Kg wet	0.0113		98.7	70-130	1.51	20	
Benzene	0.0108	0.0011	mg/Kg wet	0.0113		95.7	70-130	6.76	20	
Bromobenzene	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130	2.27	20	
Bromochloromethane	0.0114	0.0011	mg/Kg wet	0.0113		101	70-130	3.12	20	
Bromodichloromethane	0.0117	0.0011	mg/Kg wet	0.0113		103	70-130	5.66	20	
Bromoform	0.0134	0.0011	mg/Kg wet	0.0113		118	70-130	1.26	20	
Bromomethane	0.00962	0.0023	mg/Kg wet	0.0113		84.9	40-160	9.63	20	V-20 †
2-Butanone (MEK)	0.108	0.023	mg/Kg wet	0.113		95.5	40-160	6.52	20	†
n-Butylbenzene	0.0113	0.0011	mg/Kg wet	0.0113		100	70-130	3.73	20	
sec-Butylbenzene	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130	3.12	20	
tert-Butylbenzene	0.0111	0.0011	mg/Kg wet	0.0113		98.3	70-130	4.86	20	
tert-Butyl Ethyl Ether (TBEE)	0.0102	0.00057	mg/Kg wet	0.0113		90.4	70-130	3.59	20	
Carbon Disulfide	0.0121	0.011	mg/Kg wet	0.0113		107	70-130	12.3	20	
Carbon Tetrachloride	0.0104	0.0011	mg/Kg wet	0.0113		91.8	70-130	6.53	20	
Chlorobenzene	0.0124	0.0011	mg/Kg wet	0.0113		109	70-130	3.42	20	
Chlorodibromomethane	0.0120	0.00057	mg/Kg wet	0.0113		106	70-130	1.50	20	
Chloroethane	0.0112	0.0023	mg/Kg wet	0.0113		98.8	70-130	6.27	20	
Chloroform	0.0112	0.0023	mg/Kg wet	0.0113		98.5	70-130	7.71	20	
Chloromethane	0.0102	0.0023	mg/Kg wet	0.0113		90.2	40-160	7.78	20	V-20 †
2-Chlorotoluene	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130	4.52	20	
4-Chlorotoluene	0.0120	0.0011	mg/Kg wet	0.0113		106	70-130	7.55	20	
1,2-Dibromo-3-chloropropane (DBCP)	0.0133	0.0045	mg/Kg wet	0.0113		117	70-130	0.511	20	
1,2-Dibromoethane (EDB)	0.0121	0.00057	mg/Kg wet	0.0113		106	70-130	4.77	20	
Dibromomethane	0.0117	0.0011	mg/Kg wet	0.0113		103	70-130	3.70	20	
1,2-Dichlorobenzene	0.0123	0.0011	mg/Kg wet	0.0113		109	70-130	0.275	20	
1,3-Dichlorobenzene	0.0123	0.0011	mg/Kg wet	0.0113		109	70-130	2.72	20	
1,4-Dichlorobenzene	0.0121	0.0011	mg/Kg wet	0.0113		107	70-130	0.280	20	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233680 - SW-846 5035										
LCS Dup (B233680-BSD1)				Prepared & Analyzed: 06/19/19						
Dichlorodifluoromethane (Freon 12)	0.0103	0.0023	mg/Kg wet	0.0113		90.9	40-160	11.3	20	†
1,1-Dichloroethane	0.0109	0.0011	mg/Kg wet	0.0113		96.3	70-130	5.16	20	
1,2-Dichloroethane	0.0115	0.0011	mg/Kg wet	0.0113		102	70-130	1.08	20	
1,1-Dichloroethylene	0.0114	0.0011	mg/Kg wet	0.0113		101	70-130	8.65	20	
cis-1,2-Dichloroethylene	0.0110	0.0011	mg/Kg wet	0.0113		96.7	70-130	8.23	20	
trans-1,2-Dichloroethylene	0.0107	0.0011	mg/Kg wet	0.0113		94.1	70-130	5.18	20	
1,2-Dichloropropane	0.0112	0.0011	mg/Kg wet	0.0113		98.7	70-130	4.75	20	
1,3-Dichloropropane	0.0112	0.00057	mg/Kg wet	0.0113		98.8	70-130	2.30	20	
2,2-Dichloropropane	0.0106	0.0011	mg/Kg wet	0.0113		93.3	70-130	8.12	20	
1,1-Dichloropropene	0.0107	0.0023	mg/Kg wet	0.0113		94.2	70-130	8.24	20	
cis-1,3-Dichloropropene	0.0114	0.00057	mg/Kg wet	0.0113		101	70-130	1.97	20	
trans-1,3-Dichloropropene	0.0116	0.00057	mg/Kg wet	0.0113		102	70-130	2.98	20	
Diethyl Ether	0.0113	0.0023	mg/Kg wet	0.0113		99.4	70-130	4.14	20	
Diisopropyl Ether (DIPE)	0.0107	0.00057	mg/Kg wet	0.0113		94.1	70-130	2.41	20	
1,4-Dioxane	0.117	0.057	mg/Kg wet	0.113		103	40-160	4.29	20	V-16 †
Ethylbenzene	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130	4.87	20	
Hexachlorobutadiene	0.0125	0.0011	mg/Kg wet	0.0113		110	70-130	4.16	20	
2-Hexanone (MBK)	0.112	0.011	mg/Kg wet	0.113		98.7	40-160	4.41	20	†
Isopropylbenzene (Cumene)	0.0122	0.0011	mg/Kg wet	0.0113		107	70-130	3.93	20	
p-Isopropyltoluene (p-Cymene)	0.0114	0.0011	mg/Kg wet	0.0113		101	70-130	5.13	20	
Methyl tert-Butyl Ether (MTBE)	0.0111	0.0011	mg/Kg wet	0.0113		98.2	70-130	4.87	20	
Methylene Chloride	0.0111	0.0057	mg/Kg wet	0.0113		98.0	70-130	1.62	20	
4-Methyl-2-pentanone (MIBK)	0.112	0.011	mg/Kg wet	0.113		98.9	40-160	3.95	20	†
Naphthalene	0.0124	0.0023	mg/Kg wet	0.0113		109	70-130	3.15	20	
n-Propylbenzene	0.0120	0.0011	mg/Kg wet	0.0113		106	70-130	6.78	20	
Styrene	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130	6.42	20	
1,1,1,2-Tetrachloroethane	0.0126	0.0011	mg/Kg wet	0.0113		111	70-130	4.57	20	
1,1,2,2-Tetrachloroethane	0.0136	0.00057	mg/Kg wet	0.0113		120	70-130	2.15	20	
Tetrachloroethylene	0.0121	0.0011	mg/Kg wet	0.0113		107	70-130	6.08	20	
Tetrahydrofuran	0.0116	0.0045	mg/Kg wet	0.0113		102	70-130	5.51	20	
Toluene	0.0115	0.0011	mg/Kg wet	0.0113		101	70-130	3.31	20	
1,2,3-Trichlorobenzene	0.0120	0.0045	mg/Kg wet	0.0113		106	70-130	1.69	20	
1,2,4-Trichlorobenzene	0.0121	0.0011	mg/Kg wet	0.0113		107	70-130	0.0934	20	
1,1,1-Trichloroethane	0.0115	0.0011	mg/Kg wet	0.0113		102	70-130	3.48	20	
1,1,2-Trichloroethane	0.0124	0.0011	mg/Kg wet	0.0113		109	70-130	1.81	20	
Trichloroethylene	0.0115	0.0011	mg/Kg wet	0.0113		101	70-130	4.45	20	
Trichlorofluoromethane (Freon 11)	0.0106	0.0023	mg/Kg wet	0.0113		93.6	70-130	5.91	20	
1,2,3-Trichloropropane	0.0118	0.0023	mg/Kg wet	0.0113		104	70-130	3.86	20	
1,2,4-Trimethylbenzene	0.0110	0.0011	mg/Kg wet	0.0113		97.4	70-130	4.22	20	
1,3,5-Trimethylbenzene	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130	5.43	20	
Vinyl Chloride	0.00995	0.0023	mg/Kg wet	0.0113		87.8	70-130	7.46	20	
m+p Xylene	0.0239	0.0023	mg/Kg wet	0.0227		105	70-130	6.21	20	
o-Xylene	0.0121	0.0011	mg/Kg wet	0.0113		106	70-130	4.14	20	
Surrogate: 1,2-Dichloroethane-d4	0.0265		mg/Kg wet	0.0283		93.7	70-130			
Surrogate: Toluene-d8	0.0280		mg/Kg wet	0.0283		98.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.0283		mg/Kg wet	0.0283		100	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233490 - SW-846 3546										
Blank (B233490-BLK1)				Prepared: 06/17/19 Analyzed: 06/18/19						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							V-34
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							V-34
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							V-05
1,2-Diphenylhydrazine/Azobenzene	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							
Pentachlorophenol	ND	0.34	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233490 - SW-846 3546										
Blank (B233490-BLK1)				Prepared: 06/17/19 Analyzed: 06/18/19						
Phenol	ND	0.34	mg/Kg wet							
Pyrene	ND	0.17	mg/Kg wet							
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet							
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet							
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet							
Surrogate: 2-Fluorophenol	5.08		mg/Kg wet	6.67		76.2	30-130			
Surrogate: Phenol-d6	5.30		mg/Kg wet	6.67		79.5	30-130			
Surrogate: Nitrobenzene-d5	2.62		mg/Kg wet	3.33		78.7	30-130			
Surrogate: 2-Fluorobiphenyl	2.73		mg/Kg wet	3.33		81.8	30-130			
Surrogate: 2,4,6-Tribromophenol	5.59		mg/Kg wet	6.67		83.9	30-130			
Surrogate: p-Terphenyl-d14	3.06		mg/Kg wet	3.33		91.9	30-130			
LCS (B233490-BS1)				Prepared: 06/17/19 Analyzed: 06/18/19						
Acenaphthene	1.26	0.17	mg/Kg wet	1.67		75.8	40-140			
Acenaphthylene	1.42	0.17	mg/Kg wet	1.67		85.0	40-140			
Acetophenone	1.16	0.34	mg/Kg wet	1.67		69.7	40-140			
Aniline	1.40	0.34	mg/Kg wet	1.67		84.1	40-140			V-34
Anthracene	1.43	0.17	mg/Kg wet	1.67		85.6	40-140			
Benzo(a)anthracene	1.51	0.17	mg/Kg wet	1.67		90.4	40-140			
Benzo(a)pyrene	1.48	0.17	mg/Kg wet	1.67		88.6	40-140			
Benzo(b)fluoranthene	1.47	0.17	mg/Kg wet	1.67		88.2	40-140			
Benzo(g,h,i)perylene	1.25	0.17	mg/Kg wet	1.67		75.2	40-140			
Benzo(k)fluoranthene	1.49	0.17	mg/Kg wet	1.67		89.2	40-140			
Bis(2-chloroethoxy)methane	1.48	0.34	mg/Kg wet	1.67		88.8	40-140			
Bis(2-chloroethyl)ether	1.26	0.34	mg/Kg wet	1.67		75.6	40-140			
Bis(2-chloroisopropyl)ether	1.33	0.34	mg/Kg wet	1.67		79.6	40-140			
Bis(2-Ethylhexyl)phthalate	1.34	0.34	mg/Kg wet	1.67		80.6	40-140			
4-Bromophenylphenylether	1.41	0.34	mg/Kg wet	1.67		84.7	40-140			
Butylbenzylphthalate	1.37	0.34	mg/Kg wet	1.67		82.3	40-140			
4-Chloroaniline	1.21	0.66	mg/Kg wet	1.67		72.8	15-140			V-34 †
2-Chloronaphthalene	1.31	0.34	mg/Kg wet	1.67		78.7	40-140			
2-Chlorophenol	1.36	0.34	mg/Kg wet	1.67		81.4	30-130			
Chrysene	1.58	0.17	mg/Kg wet	1.67		95.0	40-140			
Dibenz(a,h)anthracene	1.27	0.17	mg/Kg wet	1.67		76.3	40-140			
Dibenzofuran	1.42	0.34	mg/Kg wet	1.67		84.9	40-140			
Di-n-butylphthalate	1.36	0.34	mg/Kg wet	1.67		81.6	40-140			
1,2-Dichlorobenzene	1.20	0.34	mg/Kg wet	1.67		72.2	40-140			
1,3-Dichlorobenzene	1.16	0.34	mg/Kg wet	1.67		69.4	40-140			
1,4-Dichlorobenzene	1.18	0.34	mg/Kg wet	1.67		71.0	40-140			
3,3-Dichlorobenzidine	1.37	0.17	mg/Kg wet	1.67		82.2	40-140			
2,4-Dichlorophenol	1.39	0.34	mg/Kg wet	1.67		83.6	30-130			
Diethylphthalate	1.43	0.34	mg/Kg wet	1.67		85.7	40-140			
2,4-Dimethylphenol	1.43	0.34	mg/Kg wet	1.67		85.9	30-130			
Dimethylphthalate	1.44	0.34	mg/Kg wet	1.67		86.3	40-140			
2,4-Dinitrophenol	1.17	0.66	mg/Kg wet	1.67		70.0	15-140			†
2,4-Dinitrotoluene	1.61	0.34	mg/Kg wet	1.67		96.8	40-140			
2,6-Dinitrotoluene	1.56	0.34	mg/Kg wet	1.67		93.5	40-140			
Di-n-octylphthalate	1.38	0.34	mg/Kg wet	1.67		83.0	40-140			V-05
1,2-Diphenylhydrazine/Azobenzene	1.36	0.34	mg/Kg wet	1.67		81.7	40-140			
Fluoranthene	1.48	0.17	mg/Kg wet	1.67		88.7	40-140			
Fluorene	1.43	0.17	mg/Kg wet	1.67		85.8	40-140			
Hexachlorobenzene	1.50	0.34	mg/Kg wet	1.67		89.9	40-140			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233490 - SW-846 3546										
LCS (B233490-BS1)										
Prepared: 06/17/19 Analyzed: 06/18/19										
Hexachlorobutadiene	1.28	0.34	mg/Kg wet	1.67		76.9	40-140			
Hexachloroethane	1.15	0.34	mg/Kg wet	1.67		69.2	40-140			
Indeno(1,2,3-cd)pyrene	1.29	0.17	mg/Kg wet	1.67		77.4	40-140			
Isophorone	1.46	0.34	mg/Kg wet	1.67		87.4	40-140			
2-Methylnaphthalene	1.32	0.17	mg/Kg wet	1.67		79.0	40-140			
2-Methylphenol	1.33	0.34	mg/Kg wet	1.67		79.8	30-130			
3/4-Methylphenol	1.48	0.34	mg/Kg wet	1.67		88.7	30-130			
Naphthalene	1.25	0.17	mg/Kg wet	1.67		75.1	40-140			
Nitrobenzene	1.34	0.34	mg/Kg wet	1.67		80.1	40-140			
2-Nitrophenol	1.34	0.34	mg/Kg wet	1.67		80.6	30-130			
4-Nitrophenol	1.70	0.66	mg/Kg wet	1.67		102	15-140			†
Pentachlorophenol	1.26	0.34	mg/Kg wet	1.67		75.7	30-130			
Phenanthrene	1.42	0.17	mg/Kg wet	1.67		85.2	40-140			
Phenol	1.35	0.34	mg/Kg wet	1.67		81.2	15-140			†
Pyrene	1.42	0.17	mg/Kg wet	1.67		85.1	40-140			
1,2,4-Trichlorobenzene	1.29	0.34	mg/Kg wet	1.67		77.6	40-140			
2,4,5-Trichlorophenol	1.42	0.34	mg/Kg wet	1.67		85.1	30-130			
2,4,6-Trichlorophenol	1.45	0.34	mg/Kg wet	1.67		87.0	30-130			
Surrogate: 2-Fluorophenol	4.87		mg/Kg wet	6.67		73.1	30-130			
Surrogate: Phenol-d6	5.25		mg/Kg wet	6.67		78.7	30-130			
Surrogate: Nitrobenzene-d5	2.55		mg/Kg wet	3.33		76.5	30-130			
Surrogate: 2-Fluorobiphenyl	2.71		mg/Kg wet	3.33		81.4	30-130			
Surrogate: 2,4,6-Tribromophenol	5.84		mg/Kg wet	6.67		87.6	30-130			
Surrogate: p-Terphenyl-d14	2.97		mg/Kg wet	3.33		89.1	30-130			
LCS Dup (B233490-BSD1)										
Prepared: 06/17/19 Analyzed: 06/18/19										
Acenaphthene	1.27	0.17	mg/Kg wet	1.67		76.1	40-140	0.474	30	
Acenaphthylene	1.35	0.17	mg/Kg wet	1.67		80.9	40-140	4.99	30	
Acetophenone	1.16	0.34	mg/Kg wet	1.67		69.4	40-140	0.460	30	
Aniline	1.31	0.34	mg/Kg wet	1.67		78.7	40-140	6.68	30	V-34
Anthracene	1.42	0.17	mg/Kg wet	1.67		85.0	40-140	0.610	30	
Benzo(a)anthracene	1.46	0.17	mg/Kg wet	1.67		87.4	40-140	3.33	30	
Benzo(a)pyrene	1.46	0.17	mg/Kg wet	1.67		87.7	40-140	0.998	30	
Benzo(b)fluoranthene	1.47	0.17	mg/Kg wet	1.67		88.3	40-140	0.136	30	
Benzo(g,h,i)perylene	1.26	0.17	mg/Kg wet	1.67		75.4	40-140	0.292	30	
Benzo(k)fluoranthene	1.50	0.17	mg/Kg wet	1.67		90.2	40-140	1.11	30	
Bis(2-chloroethoxy)methane	1.43	0.34	mg/Kg wet	1.67		85.7	40-140	3.58	30	
Bis(2-chloroethyl)ether	1.32	0.34	mg/Kg wet	1.67		79.1	40-140	4.60	30	
Bis(2-chloroisopropyl)ether	1.31	0.34	mg/Kg wet	1.67		78.5	40-140	1.42	30	
Bis(2-Ethylhexyl)phthalate	1.30	0.34	mg/Kg wet	1.67		78.0	40-140	3.23	30	
4-Bromophenylphenylether	1.40	0.34	mg/Kg wet	1.67		83.7	40-140	1.16	30	
Butylbenzylphthalate	1.33	0.34	mg/Kg wet	1.67		80.1	40-140	2.78	30	
4-Chloroaniline	1.16	0.66	mg/Kg wet	1.67		69.4	15-140	4.84	30	V-34 †
2-Chloronaphthalene	1.29	0.34	mg/Kg wet	1.67		77.6	40-140	1.38	30	
2-Chlorophenol	1.32	0.34	mg/Kg wet	1.67		79.2	30-130	2.79	30	
Chrysene	1.56	0.17	mg/Kg wet	1.67		93.5	40-140	1.61	30	
Dibenz(a,h)anthracene	1.28	0.17	mg/Kg wet	1.67		76.8	40-140	0.575	30	
Dibenzofuran	1.34	0.34	mg/Kg wet	1.67		80.6	40-140	5.25	30	
Di-n-butylphthalate	1.31	0.34	mg/Kg wet	1.67		78.6	40-140	3.77	30	
1,2-Dichlorobenzene	1.22	0.34	mg/Kg wet	1.67		72.9	40-140	0.992	30	
1,3-Dichlorobenzene	1.20	0.34	mg/Kg wet	1.67		72.2	40-140	3.87	30	
1,4-Dichlorobenzene	1.18	0.34	mg/Kg wet	1.67		70.5	40-140	0.678	30	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233490 - SW-846 3546										
LCS Dup (B233490-BSD1)					Prepared: 06/17/19 Analyzed: 06/18/19					
3,3-Dichlorobenzidine	1.37	0.17	mg/Kg wet	1.67		82.3	40-140	0.122	30	
2,4-Dichlorophenol	1.36	0.34	mg/Kg wet	1.67		81.9	30-130	2.10	30	
Diethylphthalate	1.42	0.34	mg/Kg wet	1.67		85.3	40-140	0.538	30	
2,4-Dimethylphenol	1.37	0.34	mg/Kg wet	1.67		82.5	30-130	4.09	30	
Dimethylphthalate	1.38	0.34	mg/Kg wet	1.67		82.7	40-140	4.17	30	
2,4-Dinitrophenol	1.09	0.66	mg/Kg wet	1.67		65.3	15-140	6.89	30	†
2,4-Dinitrotoluene	1.51	0.34	mg/Kg wet	1.67		90.4	40-140	6.86	30	
2,6-Dinitrotoluene	1.55	0.34	mg/Kg wet	1.67		93.2	40-140	0.236	30	
Di-n-octylphthalate	1.36	0.34	mg/Kg wet	1.67		81.8	40-140	1.41	30	V-05
1,2-Diphenylhydrazine/Azobenzene	1.32	0.34	mg/Kg wet	1.67		79.5	40-140	2.78	30	
Fluoranthene	1.48	0.17	mg/Kg wet	1.67		88.9	40-140	0.158	30	
Fluorene	1.39	0.17	mg/Kg wet	1.67		83.6	40-140	2.60	30	
Hexachlorobenzene	1.44	0.34	mg/Kg wet	1.67		86.7	40-140	3.65	30	
Hexachlorobutadiene	1.29	0.34	mg/Kg wet	1.67		77.1	40-140	0.260	30	
Hexachloroethane	1.09	0.34	mg/Kg wet	1.67		65.3	40-140	5.86	30	
Indeno(1,2,3-cd)pyrene	1.37	0.17	mg/Kg wet	1.67		82.0	40-140	5.82	30	
Isophorone	1.40	0.34	mg/Kg wet	1.67		84.3	40-140	3.66	30	
2-Methylnaphthalene	1.35	0.17	mg/Kg wet	1.67		80.8	40-140	2.30	30	
2-Methylphenol	1.30	0.34	mg/Kg wet	1.67		78.1	30-130	2.20	30	
3/4-Methylphenol	1.40	0.34	mg/Kg wet	1.67		84.0	30-130	5.40	30	
Naphthalene	1.26	0.17	mg/Kg wet	1.67		75.6	40-140	0.743	30	
Nitrobenzene	1.34	0.34	mg/Kg wet	1.67		80.6	40-140	0.573	30	
2-Nitrophenol	1.34	0.34	mg/Kg wet	1.67		80.3	30-130	0.273	30	
4-Nitrophenol	1.73	0.66	mg/Kg wet	1.67		104	15-140	1.94	30	†
Pentachlorophenol	1.27	0.34	mg/Kg wet	1.67		76.4	30-130	0.999	30	
Phenanthrene	1.41	0.17	mg/Kg wet	1.67		84.5	40-140	0.778	30	
Phenol	1.32	0.34	mg/Kg wet	1.67		79.1	15-140	2.65	30	†
Pyrene	1.39	0.17	mg/Kg wet	1.67		83.2	40-140	2.31	30	
1,2,4-Trichlorobenzene	1.28	0.34	mg/Kg wet	1.67		76.6	40-140	1.30	30	
2,4,5-Trichlorophenol	1.39	0.34	mg/Kg wet	1.67		83.5	30-130	1.90	30	
2,4,6-Trichlorophenol	1.36	0.34	mg/Kg wet	1.67		81.5	30-130	6.62	30	
Surrogate: 2-Fluorophenol	4.94		mg/Kg wet	6.67		74.1	30-130			
Surrogate: Phenol-d6	5.11		mg/Kg wet	6.67		76.6	30-130			
Surrogate: Nitrobenzene-d5	2.56		mg/Kg wet	3.33		76.7	30-130			
Surrogate: 2-Fluorobiphenyl	2.65		mg/Kg wet	3.33		79.6	30-130			
Surrogate: 2,4,6-Tribromophenol	5.61		mg/Kg wet	6.67		84.2	30-130			
Surrogate: p-Terphenyl-d14	2.86		mg/Kg wet	3.33		85.8	30-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B234079 - SW-846 3540C
Blank (B234079-BLK1)

Prepared: 06/25/19 Analyzed: 06/26/19

Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	0.181		mg/Kg wet	0.200		90.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.202		mg/Kg wet	0.200		101	30-150			
Surrogate: Tetrachloro-m-xylene	0.170		mg/Kg wet	0.200		85.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.163		mg/Kg wet	0.200		81.6	30-150			

LCS (B234079-BS1)

Prepared: 06/25/19 Analyzed: 06/26/19

Aroclor-1016	0.19	0.020	mg/Kg wet	0.200		94.0	40-140			
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		87.5	40-140			
Aroclor-1260	0.17	0.020	mg/Kg wet	0.200		84.4	40-140			
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		85.9	40-140			
Surrogate: Decachlorobiphenyl	0.200		mg/Kg wet	0.200		99.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.224		mg/Kg wet	0.200		112	30-150			
Surrogate: Tetrachloro-m-xylene	0.182		mg/Kg wet	0.200		90.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.175		mg/Kg wet	0.200		87.3	30-150			

LCS Dup (B234079-BSD1)

Prepared: 06/25/19 Analyzed: 06/26/19

Aroclor-1016	0.18	0.020	mg/Kg wet	0.200		88.7	40-140	5.75	30	
Aroclor-1016 [2C]	0.16	0.020	mg/Kg wet	0.200		80.8	40-140	7.93	30	
Aroclor-1260	0.15	0.020	mg/Kg wet	0.200		74.1	40-140	13.0	30	
Aroclor-1260 [2C]	0.15	0.020	mg/Kg wet	0.200		75.8	40-140	12.5	30	
Surrogate: Decachlorobiphenyl	0.165		mg/Kg wet	0.200		82.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.185		mg/Kg wet	0.200		92.6	30-150			
Surrogate: Tetrachloro-m-xylene	0.167		mg/Kg wet	0.200		83.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.162		mg/Kg wet	0.200		80.8	30-150			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233487 - SW-846 3546										
Blank (B233487-BLK1)					Prepared: 06/17/19 Analyzed: 06/18/19					
TPH (C9-C36)	ND	8.3	mg/Kg wet							
Surrogate: 2-Fluorobiphenyl	1.95		mg/Kg wet	3.33		58.5	40-140			
LCS (B233487-BS1)					Prepared: 06/17/19 Analyzed: 06/18/19					
TPH (C9-C36)	27.0	8.3	mg/Kg wet	33.3		81.1	40-140			
Surrogate: 2-Fluorobiphenyl	2.78		mg/Kg wet	3.33		83.5	40-140			
LCS Dup (B233487-BSD1)					Prepared: 06/17/19 Analyzed: 06/18/19					
TPH (C9-C36)	26.9	8.3	mg/Kg wet	33.3		80.7	40-140	0.396	30	
Surrogate: 2-Fluorobiphenyl	2.75		mg/Kg wet	3.33		82.5	40-140			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B233529 - SW-846 3546
Blank (B233529-BLK1)

Prepared: 06/17/19 Analyzed: 06/21/19

C9-C18 Aliphatics	ND	10	mg/Kg wet							
C19-C36 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg wet							
C11-C22 Aromatics	ND	10	mg/Kg wet							
Acenaphthene	ND	0.10	mg/Kg wet							
Acenaphthylene	ND	0.10	mg/Kg wet							
Anthracene	ND	0.10	mg/Kg wet							
Benzo(a)anthracene	ND	0.10	mg/Kg wet							
Benzo(a)pyrene	ND	0.10	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.10	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.10	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.10	mg/Kg wet							
Chrysene	ND	0.10	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.10	mg/Kg wet							
Fluoranthene	ND	0.10	mg/Kg wet							
Fluorene	ND	0.10	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg wet							
2-Methylnaphthalene	ND	0.10	mg/Kg wet							
Naphthalene	ND	0.10	mg/Kg wet							
Phenanthrene	ND	0.10	mg/Kg wet							
Pyrene	ND	0.10	mg/Kg wet							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	ND	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							
n-Nonadecane	ND	0.10	mg/Kg wet							
n-Nonane	ND	0.10	mg/Kg wet							
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	ND	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	ND	0.10	mg/Kg wet							
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
Surrogate: Chlorooctadecane (COD)	3.71		mg/Kg wet	5.00		74.3	40-140			
Surrogate: o-Terphenyl (OTP)	3.88		mg/Kg wet	5.00		77.6	40-140			
Surrogate: 2-Bromonaphthalene	4.97		mg/Kg wet	5.00		99.3	40-140			
Surrogate: 2-Fluorobiphenyl	5.13		mg/Kg wet	5.00		103	40-140			

LCS (B233529-BS1)

Prepared: 06/17/19 Analyzed: 06/21/19

C9-C18 Aliphatics	21.3	10	mg/Kg wet	30.0		71.1	40-140			
C19-C36 Aliphatics	34.3	10	mg/Kg wet	40.0		85.7	40-140			
Unadjusted C11-C22 Aromatics	68.1	10	mg/Kg wet	85.0		80.1	40-140			
Acenaphthene	3.86	0.10	mg/Kg wet	5.00		77.2	40-140			
Acenaphthylene	3.57	0.10	mg/Kg wet	5.00		71.5	40-140			
Anthracene	4.05	0.10	mg/Kg wet	5.00		81.1	40-140			
Benzo(a)anthracene	3.91	0.10	mg/Kg wet	5.00		78.1	40-140			
Benzo(a)pyrene	3.69	0.10	mg/Kg wet	5.00		73.8	40-140			
Benzo(b)fluoranthene	3.84	0.10	mg/Kg wet	5.00		76.7	40-140			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B233529 - SW-846 3546
LCS (B233529-BS1)

Prepared: 06/17/19 Analyzed: 06/21/19

Benzo(g,h,i)perylene	3.59	0.10	mg/Kg wet	5.00		71.8	40-140			
Benzo(k)fluoranthene	3.80	0.10	mg/Kg wet	5.00		75.9	40-140			
Chrysene	3.99	0.10	mg/Kg wet	5.00		79.8	40-140			
Dibenz(a,h)anthracene	3.77	0.10	mg/Kg wet	5.00		75.4	40-140			
Fluoranthene	4.09	0.10	mg/Kg wet	5.00		81.7	40-140			
Fluorene	3.89	0.10	mg/Kg wet	5.00		77.8	40-140			
Indeno(1,2,3-cd)pyrene	3.48	0.10	mg/Kg wet	5.00		69.6	40-140			
2-Methylnaphthalene	3.27	0.10	mg/Kg wet	5.00		65.3	40-140			
Naphthalene	3.25	0.10	mg/Kg wet	5.00		65.0	40-140			
Phenanthrene	4.10	0.10	mg/Kg wet	5.00		82.0	40-140			
Pyrene	4.08	0.10	mg/Kg wet	5.00		81.6	40-140			
n-Decane	2.53	0.10	mg/Kg wet	5.00		50.6	40-140			
n-Docosane	4.03	0.10	mg/Kg wet	5.00		80.6	40-140			
n-Dodecane	3.11	0.10	mg/Kg wet	5.00		62.2	40-140			
n-Eicosane	3.98	0.10	mg/Kg wet	5.00		79.6	40-140			
n-Hexacosane	3.90	0.10	mg/Kg wet	5.00		78.0	40-140			
n-Hexadecane	3.97	0.10	mg/Kg wet	5.00		79.4	40-140			
n-Hexatriacontane	3.99	0.10	mg/Kg wet	5.00		79.7	40-140			
n-Nonadecane	4.00	0.10	mg/Kg wet	5.00		80.0	40-140			
n-Nonane	1.77	0.10	mg/Kg wet	5.00		35.4	30-140			
n-Octacosane	3.86	0.10	mg/Kg wet	5.00		77.1	40-140			
n-Octadecane	4.15	0.10	mg/Kg wet	5.00		83.0	40-140			
n-Tetracosane	3.96	0.10	mg/Kg wet	5.00		79.1	40-140			
n-Tetradecane	3.60	0.10	mg/Kg wet	5.00		72.1	40-140			
n-Triacontane	3.91	0.10	mg/Kg wet	5.00		78.2	40-140			
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	3.59		mg/Kg wet	5.00		71.9	40-140			
Surrogate: o-Terphenyl (OTP)	4.06		mg/Kg wet	5.00		81.1	40-140			
Surrogate: 2-Bromonaphthalene	5.01		mg/Kg wet	5.00		100	40-140			
Surrogate: 2-Fluorobiphenyl	5.18		mg/Kg wet	5.00		104	40-140			

LCS Dup (B233529-BSD1)

Prepared: 06/17/19 Analyzed: 06/21/19

C9-C18 Aliphatics	22.8	10	mg/Kg wet	30.0		76.2	40-140	6.90	25	
C19-C36 Aliphatics	35.4	10	mg/Kg wet	40.0		88.4	40-140	3.04	25	
Unadjusted C11-C22 Aromatics	67.8	10	mg/Kg wet	85.0		79.8	40-140	0.405	25	
Acenaphthene	3.85	0.10	mg/Kg wet	5.00		77.1	40-140	0.176	25	
Acenaphthylene	3.57	0.10	mg/Kg wet	5.00		71.4	40-140	0.0308	25	
Anthracene	4.03	0.10	mg/Kg wet	5.00		80.5	40-140	0.663	25	
Benzo(a)anthracene	3.88	0.10	mg/Kg wet	5.00		77.6	40-140	0.719	25	
Benzo(a)pyrene	3.67	0.10	mg/Kg wet	5.00		73.3	40-140	0.737	25	
Benzo(b)fluoranthene	3.78	0.10	mg/Kg wet	5.00		75.6	40-140	1.50	25	
Benzo(g,h,i)perylene	3.58	0.10	mg/Kg wet	5.00		71.6	40-140	0.315	25	
Benzo(k)fluoranthene	3.80	0.10	mg/Kg wet	5.00		75.9	40-140	0.0184	25	
Chrysene	4.00	0.10	mg/Kg wet	5.00		80.0	40-140	0.148	25	
Dibenz(a,h)anthracene	3.78	0.10	mg/Kg wet	5.00		75.6	40-140	0.199	25	
Fluoranthene	4.03	0.10	mg/Kg wet	5.00		80.6	40-140	1.35	25	
Fluorene	3.86	0.10	mg/Kg wet	5.00		77.2	40-140	0.761	25	
Indeno(1,2,3-cd)pyrene	3.45	0.10	mg/Kg wet	5.00		69.0	40-140	0.866	25	
2-Methylnaphthalene	3.30	0.10	mg/Kg wet	5.00		66.0	40-140	1.05	25	
Naphthalene	3.33	0.10	mg/Kg wet	5.00		66.5	40-140	2.26	25	
Phenanthrene	4.05	0.10	mg/Kg wet	5.00		81.1	40-140	1.16	25	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233529 - SW-846 3546										
LCS Dup (B233529-BSD1)					Prepared: 06/17/19 Analyzed: 06/21/19					
Pyrene	4.02	0.10	mg/Kg wet	5.00		80.5	40-140	1.36	25	
n-Decane	2.80	0.10	mg/Kg wet	5.00		56.1	40-140	10.2	25	
n-Docosane	4.20	0.10	mg/Kg wet	5.00		83.9	40-140	3.99	25	
n-Dodecane	3.31	0.10	mg/Kg wet	5.00		66.3	40-140	6.38	25	
n-Eicosane	4.13	0.10	mg/Kg wet	5.00		82.7	40-140	3.85	25	
n-Hexacosane	4.07	0.10	mg/Kg wet	5.00		81.3	40-140	4.13	25	
n-Hexadecane	4.18	0.10	mg/Kg wet	5.00		83.6	40-140	5.15	25	
n-Hexatriacontane	4.08	0.10	mg/Kg wet	5.00		81.6	40-140	2.29	25	
n-Nonadecane	4.19	0.10	mg/Kg wet	5.00		83.8	40-140	4.60	25	
n-Nonane	2.07	0.10	mg/Kg wet	5.00		41.4	30-140	15.5	25	
n-Octacosane	4.01	0.10	mg/Kg wet	5.00		80.3	40-140	3.98	25	
n-Octadecane	4.36	0.10	mg/Kg wet	5.00		87.2	40-140	5.00	25	
n-Tetracosane	4.11	0.10	mg/Kg wet	5.00		82.2	40-140	3.77	25	
n-Tetradecane	3.82	0.10	mg/Kg wet	5.00		76.3	40-140	5.75	25	
n-Triacontane	4.05	0.10	mg/Kg wet	5.00		81.1	40-140	3.59	25	
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	3.85		mg/Kg wet	5.00		76.9	40-140			
Surrogate: o-Terphenyl (OTP)	3.97		mg/Kg wet	5.00		79.3	40-140			
Surrogate: 2-Bromonaphthalene	4.81		mg/Kg wet	5.00		96.3	40-140			
Surrogate: 2-Fluorobiphenyl	5.01		mg/Kg wet	5.00		100	40-140			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B233483 - MA VPH
Blank (B233483-BLK1)

Prepared & Analyzed: 06/17/19

Unadjusted C5-C8 Aliphatics	ND	10	mg/Kg wet							
C5-C8 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C10 Aromatics	ND	10	mg/Kg wet							
Benzene	ND	0.050	mg/Kg wet							
Butylcyclohexane	ND	0.050	mg/Kg wet							
Decane	ND	0.050	mg/Kg wet							
Ethylbenzene	ND	0.050	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/Kg wet							
2-Methylpentane	ND	0.050	mg/Kg wet							
Naphthalene	ND	0.25	mg/Kg wet							
Nonane	ND	0.050	mg/Kg wet							
Pentane	ND	0.050	mg/Kg wet							
Toluene	ND	0.050	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.050	mg/Kg wet							
2,2,4-Trimethylpentane	ND	0.050	mg/Kg wet							
m+p Xylene	ND	0.10	mg/Kg wet							
o-Xylene	ND	0.050	mg/Kg wet							
Surrogate: 2,5-Dibromotoluene (FID)	50.0		µg/L	40.0		125	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	52.0		µg/L	40.0		130	70-130			

LCS (B233483-BS1)

Prepared & Analyzed: 06/17/19

Benzene	0.0491	0.0010	mg/Kg wet	0.0500		98.2	70-130			
Butylcyclohexane	0.0642	0.0010	mg/Kg wet	0.0500		128	70-130			
Decane	0.0527	0.0010	mg/Kg wet	0.0500		105	70-130			
Ethylbenzene	0.0497	0.0010	mg/Kg wet	0.0500		99.5	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0478	0.0010	mg/Kg wet	0.0500		95.6	70-130			
2-Methylpentane	0.0571	0.0010	mg/Kg wet	0.0500		114	70-130			
Naphthalene	0.0495	0.0050	mg/Kg wet	0.0500		99.0	70-130			
Nonane	0.0612	0.0010	mg/Kg wet	0.0500		122	30-130			
Pentane	0.0559	0.0010	mg/Kg wet	0.0500		112	70-130			
Toluene	0.0493	0.0010	mg/Kg wet	0.0500		98.5	70-130			
1,2,4-Trimethylbenzene	0.0507	0.0010	mg/Kg wet	0.0500		101	70-130			
2,2,4-Trimethylpentane	0.0566	0.0010	mg/Kg wet	0.0500		113	70-130			
m+p Xylene	0.101	0.0020	mg/Kg wet	0.100		101	70-130			
o-Xylene	0.0499	0.0010	mg/Kg wet	0.0500		99.8	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	50.9		µg/L	40.0		127	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	49.1		µg/L	40.0		123	70-130			

LCS Dup (B233483-BS1)

Prepared & Analyzed: 06/17/19

Benzene	0.0479	0.0010	mg/Kg wet	0.0500		95.9	70-130	2.36	25	
Butylcyclohexane	0.0595	0.0010	mg/Kg wet	0.0500		119	70-130	7.69	25	
Decane	0.0474	0.0010	mg/Kg wet	0.0500		94.8	70-130	10.7	25	
Ethylbenzene	0.0481	0.0010	mg/Kg wet	0.0500		96.1	70-130	3.44	25	
Methyl tert-Butyl Ether (MTBE)	0.0479	0.0010	mg/Kg wet	0.0500		95.8	70-130	0.217	25	
2-Methylpentane	0.0516	0.0010	mg/Kg wet	0.0500		103	70-130	10.1	25	
Naphthalene	0.0501	0.0050	mg/Kg wet	0.0500		100	70-130	1.19	25	
Nonane	0.0569	0.0010	mg/Kg wet	0.0500		114	30-130	7.22	25	
Pentane	0.0476	0.0010	mg/Kg wet	0.0500		95.2	70-130	15.9	25	
Toluene	0.0479	0.0010	mg/Kg wet	0.0500		95.8	70-130	2.80	25	
1,2,4-Trimethylbenzene	0.0484	0.0010	mg/Kg wet	0.0500		96.8	70-130	4.72	25	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B233483 - MA VPH
LCS Dup (B233483-BSD1)

Prepared & Analyzed: 06/17/19

2,2,4-Trimethylpentane	0.0497	0.0010	mg/Kg wet	0.0500		99.4	70-130	12.9	25	
m+p Xylene	0.0971	0.0020	mg/Kg wet	0.100		97.1	70-130	3.79	25	
o-Xylene	0.0486	0.0010	mg/Kg wet	0.0500		97.2	70-130	2.56	25	
Surrogate: 2,5-Dibromotoluene (FID)	41.6		µg/L	40.0		104	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	40.7		µg/L	40.0		102	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233608 - SW-846 7471										
Blank (B233608-BLK1)				Prepared: 06/18/19 Analyzed: 06/19/19						
Mercury	ND	0.025	mg/Kg wet							
LCS (B233608-BS1)				Prepared: 06/18/19 Analyzed: 06/19/19						
Mercury	26.8	1.9	mg/Kg wet	27.3		98.2	64-136.5			
LCS Dup (B233608-BSD1)				Prepared: 06/18/19 Analyzed: 06/19/19						
Mercury	25.0	2.0	mg/Kg wet	27.3		91.5	64-136.5	7.06	20	
Batch B233722 - SW-846 3050B										
Blank (B233722-BLK1)				Prepared: 06/19/19 Analyzed: 06/20/19						
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
LCS (B233722-BS1)				Prepared: 06/19/19 Analyzed: 06/20/19						
Arsenic	70.8	5.0	mg/Kg wet	77.2		91.7	82.4-117.4			
Barium	391	5.0	mg/Kg wet	391		100	82-118			
Cadmium	161	0.50	mg/Kg wet	182		88.7	83.1-117.5			
Chromium	262	0.99	mg/Kg wet	272		96.4	81.5-118.5			
Lead	237	1.5	mg/Kg wet	241		98.3	81.8-118.2			
Selenium	194	9.9	mg/Kg wet	216		89.7	79-121.5			
Silver	69.2	0.99	mg/Kg wet	66.3		104	79.6-120.4			
LCS Dup (B233722-BSD1)				Prepared: 06/19/19 Analyzed: 06/20/19						
Arsenic	69.7	5.0	mg/Kg wet	77.2		90.3	82.4-117.4	1.62	30	
Barium	393	5.0	mg/Kg wet	391		101	82-118	0.526	20	
Cadmium	160	0.50	mg/Kg wet	182		87.7	83.1-117.5	1.18	20	
Chromium	260	1.0	mg/Kg wet	272		95.4	81.5-118.5	1.07	30	
Lead	235	1.5	mg/Kg wet	241		97.5	81.8-118.2	0.815	30	
Selenium	194	10	mg/Kg wet	216		89.6	79-121.5	0.0878	30	
Silver	68.3	1.0	mg/Kg wet	66.3		103	79.6-120.4	1.31	30	
MRL Check (B233722-MRL1)				Prepared: 06/19/19 Analyzed: 06/20/19						
Lead	0.496	0.50	mg/Kg wet	0.498		99.6	80-120			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B233426 - SW-846 9045C										
LCS (B233426-BS1)				Prepared & Analyzed: 06/14/19						
pH	6.02		pH Units	6.00		100	90-110			
Duplicate (B233426-DUP1)				Source: 19F0857-07 Prepared & Analyzed: 06/14/19						
pH	7.3		pH Units		7.2			0.483	6.96	
Batch B233432 - SM21-22 2510B Modified										
Blank (B233432-BLK1)				Prepared & Analyzed: 06/15/19						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B233432-BS1)				Prepared & Analyzed: 06/15/19						
Specific conductance	200		µmhos/cm	192		103	90-111			
Batch B233446 - SW-846 9030A										
Blank (B233446-BLK1)				Prepared: 06/16/19 Analyzed: 06/17/19						
Reactive Sulfide	ND	2.0	mg/Kg							
LCS (B233446-BS1)				Prepared: 06/16/19 Analyzed: 06/17/19						
Reactive Sulfide	14	2.0	mg/Kg	14.8		91.9	57.6-114			
Batch B233447 - SW-846 9014										
Blank (B233447-BLK1)				Prepared: 06/16/19 Analyzed: 06/17/19						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B233447-BS1)				Prepared: 06/16/19 Analyzed: 06/17/19						
Reactive Cyanide	9.5	0.40	mg/Kg	10.0		95.4	82.8-113			

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***B9 Comp (5-10)**Lab Sample ID: 19F0857-07 Date(s) Analyzed: 06/26/2019 06/26/2019

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	-0.030	0.030	0.25	
	2	0.000	-0.030	0.030	0.23	8.3

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
RL-05	Elevated reporting limit due to high concentration of target compounds. MA CAM reporting limit not met.
RL-07	Elevated reporting limit based on lowest point in calibration. MA CAM reporting limit not met.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>MADEP-EPH-04-1.1 in Soil</i>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<i>MADEP-VPH-Feb 2018 Rev 2.1 in Soil</i>	
Unadjusted C5-C8 Aliphatics	CT,NC,ME,NH-P
C5-C8 Aliphatics	CT,NC,ME,NH-P
Unadjusted C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C10 Aromatics	CT,NC,ME,NH-P
Benzene	CT,NC,ME,NH-P
Ethylbenzene	CT,NC,ME,NH-P
Methyl tert-Butyl Ether (MTBE)	CT,NC,ME,NH-P
Naphthalene	CT,NC,ME,NH-P
Toluene	CT,NC,ME,NH-P
m+p Xylene	CT,NC,ME,NH-P
o-Xylene	CT,NC,ME,NH-P
<i>SW-846 1030 in Soil</i>	
Ignitability	NY,NH,CT,NC,ME,VA
<i>SW-846 6010D in Soil</i>	
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
<i>SW-846 7471B in Soil</i>	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 7471B in Soil</i>	
Mercury	CT,NH,NY,NC,ME,VA
<i>SW-846 8082A in Soil</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1221	CT,NH,NY,ME,NC,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1232	CT,NH,NY,ME,NC,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1242	CT,NH,NY,ME,NC,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1248	CT,NH,NY,ME,NC,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1254	CT,NH,NY,ME,NC,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1260	CT,NH,NY,ME,NC,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1262	NY,NC,VA,PA
Aroclor-1262 [2C]	NY,NC,VA,PA
Aroclor-1268	NY,NC,VA,PA
Aroclor-1268 [2C]	NY,NC,VA,PA
<i>SW-846 8260C in Soil</i>	
Acetone	CT,NH,NY,ME
Acetone	CT,NH,NY,ME
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromobenzene	NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260C in Soil</i>	
n-Butylbenzene	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromo-3-chloropropane (DBCP)	NY
Dibromomethane	NH,NY,ME
Dibromomethane	NH,NY,ME
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260C in Soil</i>	
1,4-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Ethylbenzene	CT,NH,NY,ME
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260C in Soil</i>	
2-Hexanone (MBK)	CT,NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
p-Isopropyltoluene (p-Cymene)	NH,NY
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NY
Methylene Chloride	CT,NH,NY,ME
Methylene Chloride	CT,NH,NY,ME
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
Naphthalene	NH,NY,ME
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
n-Propylbenzene	NH,NY
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
Styrene	CT,NH,NY,ME
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,3-Trichlorobenzene	ME
1,2,3-Trichlorobenzene	ME
1,2,4-Trichlorobenzene	NH,NY,ME
1,2,4-Trichlorobenzene	NH,NY,ME
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260C in Soil</i>	
1,1,2-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
<i>SW-846 8270D in Soil</i>	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH
Aniline	NY,NH
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8270D in Soil</i>	
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2019
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client PF
 Received By SL Date 6/14/14 Time 1600
 How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
 Direct from Sampling _____ Ambient _____ Melted Ice _____
 Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 22
 By Blank # _____ Actual Temp - _____
 Was Custody Seal Intact? N/A Were Samples Tampered with? N/A
 Was COC Relinquished? T Does Chain Agree With Samples? T
 Are there broken/leaking/loose caps on any samples? F
 Is COC in ink/ Legible? T Were samples received within holding time? T
 Did COC include all pertinent Information? Client T Analysis T Sampler Name T
 Project T ID's T Collection Dates/Times T
 Are Sample labels filled out and legible? T
 Are there Lab to Filters? F Who was notified? _____
 Are there Rushes? T Who was notified? _____
 Are there Short Holds? T Who was notified? none
 Is there enough Volume? T
 Is there Headspace where applicable? N/A MS/MSD? F
 Proper Media/Containers Used? T Is splitting samples required? F
 Were trip blanks received? T On COC? F
 Do all samples have the proper pH? N/A Acid _____ Base _____

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-	<u>10</u>	250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-	<u>5</u>	Flashpoint		Col./Bacteria		2oz Amb/Clear
DI-		Other Glass		Other Plastic		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

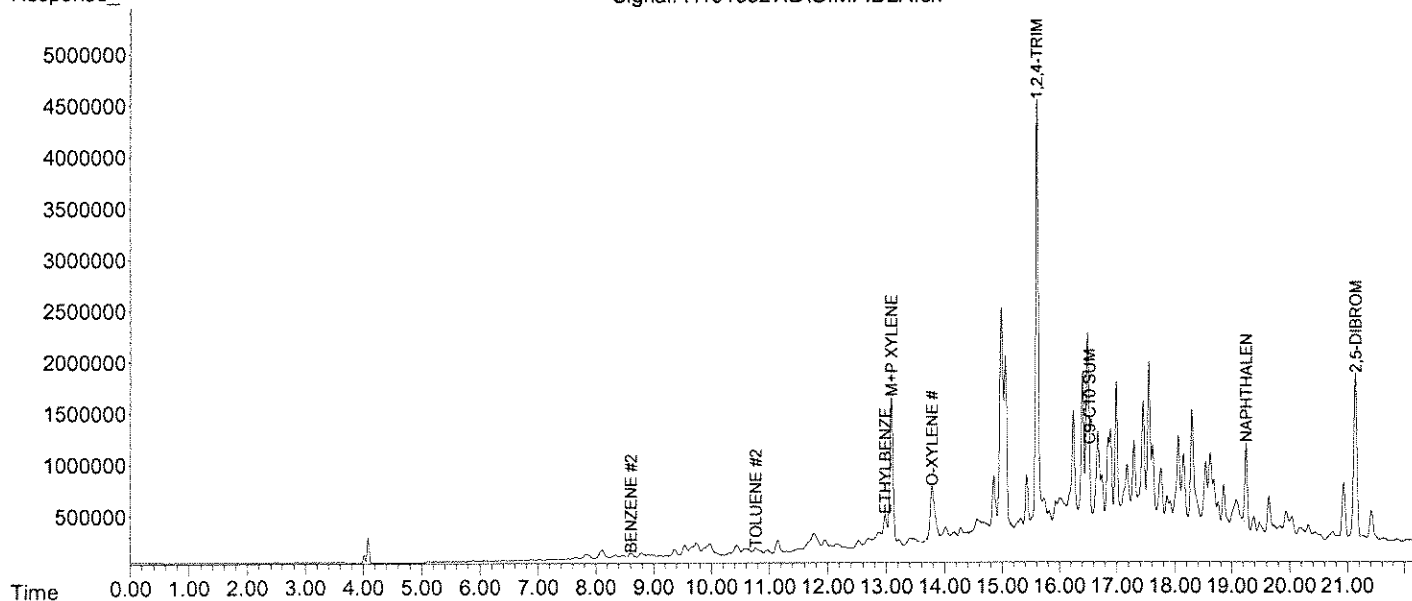
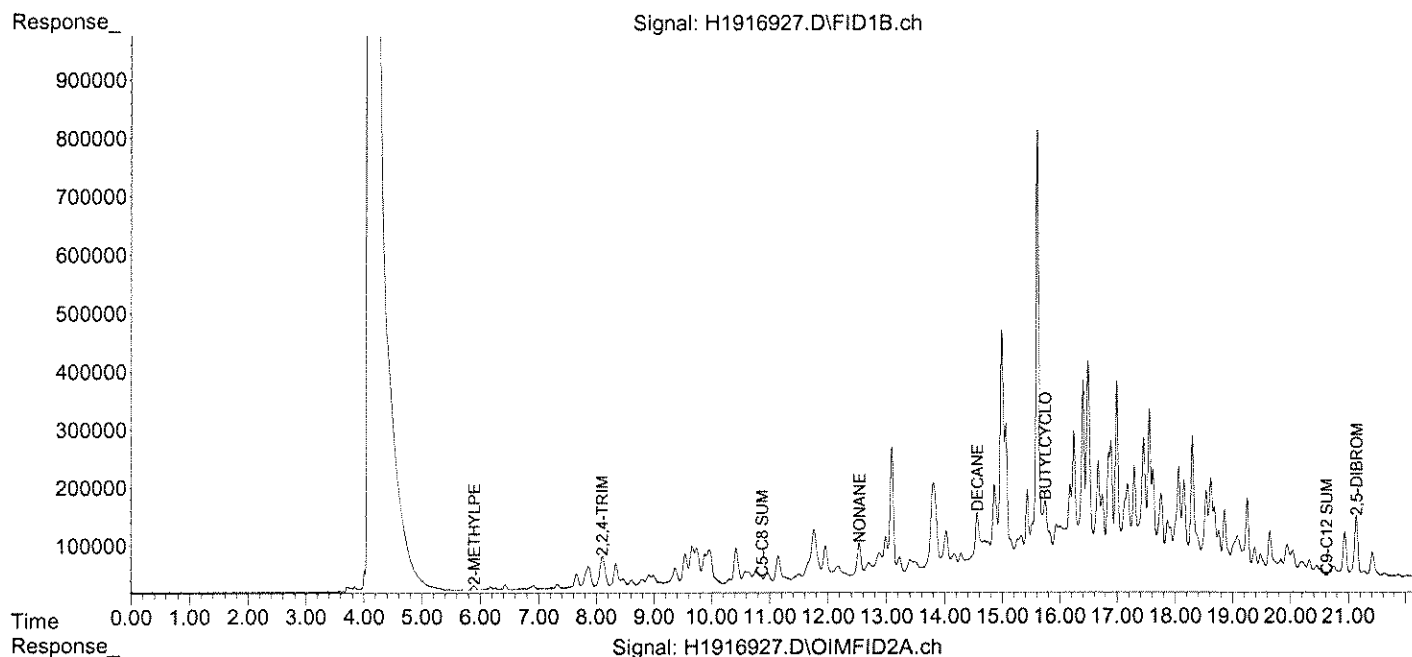
Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

Data Path : C:\msdchem\1\data\061819\
Data File : H1916927.D
Signal(s) : Signal #1: FID1B.ch Signal #2: OIMFID2A.ch
Acq On : 17 Jun 2019 07:36 pm
Operator :
Sample : 19F0857-06 @ 250X Inst : VPHGC3
Misc :
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 18 04:10:20 2019
Quant Method : C:\msdchem\1\methods\VB3053118.M
Quant Title : VPHNEW
QLast Update : Wed Apr 03 06:14:55 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory				Project #: 19F0857	
Project Location: 329 High St, Clinton, MA				RTN:	
This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)] 19F0857-01 thru 19F0857-08					
Matrices: Soil					
CAM Protocol (check all that below)					
8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A (X)	8082 PCB CAM V A ()	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()
8270 SVOC CAM II B (X)	7010 Metals CAM III C ()	MassDEP VPH CAM IV C ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
6010 Metals CAM III A (X)	6020 Metals CAM III D ()	MassDEP EPH CAM IV B (X)	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
Affirmative response to Questions A through F is required for "Presumptive Certainty" status					
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?				<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
A response to questions G, H and I below is required for "Presumptive Certainty" status					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.					
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.					
Signature: <u>Lisa Worthington</u>		Position: <u>Technical Representative</u>			
Printed Name: <u>Lisa A. Worthington</u>		Date: <u>06/21/19</u>			

July 5, 2019

Scott Parker
Parker Environmental Corp
97 Walnut Street
Clinton, MA 01510

Project Location: 329 High St
Client Job Number:
Project Number: [none]
Laboratory Work Order Number: 19F1612

Enclosed are results of analyses for samples received by the laboratory on June 28, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Michelle Koch". The signature is written in a cursive, flowing style.

Michelle M. Koch
Project Manager

July 8, 2019

Scott Parker
Parker Environmental Corp
97 Walnut Street
Clinton, MA 01510

Project Location: 329 High St.
Client Job Number:
Project Number: [none]
Laboratory Work Order Number: 19F1617

Enclosed are results of analyses for samples received by the laboratory on June 28, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Michelle Koch". The signature is written in a cursive, flowing style.

Michelle M. Koch
Project Manager

Table of Contents

Sample Summary	3
Case Narrative	4
Sample Results	6
19F1617-01	6
19F1617-02	9
19F1617-03	12
19F1617-04	15
19F1617-05	18
19F1617-06	21
19F1617-07	24
19F1617-08	27
19F1617-09	30
Sample Preparation Information	31
QC Data	33
Petroleum Hydrocarbons Analyses - EPH	33
B234559	33
B234876	35
Petroleum Hydrocarbons Analyses - VPH	38
B234491	38
B234530	39
B234663	40
B234763	41
Flag/Qualifier Summary	43
Certifications	44
Chain of Custody/Sample Receipt	46

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Parker Environmental Corp
97 Walnut Street
Clinton, MA 01510
ATTN: Scott Parker

REPORT DATE: 7/8/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19F1617

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 329 High St.

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
BOT-2 11'	19F1617-01	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G	
WSW-1 7'	19F1617-02	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G	
SSW-1 8'	19F1617-03	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G	
NSW-2 4'	19F1617-04	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G	
NSW-3 8'	19F1617-05	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G	
ESW-2 4'	19F1617-06	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G	
ESW-3 8'	19F1617-07	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G	
BOT-3 11'	19F1617-08	Soil		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SM 2540G	
MW-2	19F1617-09	Ground Water		MADEP-VPH-Feb 2018 Rev 2.1	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

MADEP-EPH-04-1.1**Qualifications:****B**

Analyte is found in the associated laboratory blank as well as in the sample.

Analyte & Samples(s) Qualified:**n-Octadecane**

B234559-BS1, B234559-BSD1, B234876-BS1, B234876-BSD1

L-04

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:**n-Nonane**

B234876-BLK1, B234876-BS1, B234876-BSD1

MADEP-VPH-Feb 2018 Rev 2.1**Qualifications:****O-01**

Soil/methanol ratio does not meet method specifications. Excess amount of soil. Sample was completely covered with methanol, but with less than the method-specified amount.

Analyte & Samples(s) Qualified:

19F1617-05[NSW-3 8'], 19F1617-07[ESW-3 8']

RL-05

Elevated reporting limit due to high concentration of target compounds. MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:**Benzene**

19F1617-02[WSW-1 7'], 19F1617-03[SSW-1 8'], 19F1617-06[ESW-2 4']

C5-C8 Aliphatics

19F1617-06[ESW-2 4']

Methyl tert-Butyl Ether (MTBE)

19F1617-02[WSW-1 7'], 19F1617-03[SSW-1 8'], 19F1617-06[ESW-2 4']

Toluene

19F1617-02[WSW-1 7'], 19F1617-06[ESW-2 4']

Unadjusted C5-C8 Aliphatics

19F1617-06[ESW-2 4']

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MADEP-EPH-04-1.1

SPE cartridge contamination with non-petroleum compounds, if present, is verified by GC/MS in each method blank per extraction batch and excluded from C 11-C22 aromatic range fraction in all samples in the batch. No significant modifications were made to the method.

MADEP-VPH-Feb 2018 Rev 2.1

No significant modifications were made to the method. All VPH samples were received preserved properly at pH <2 in the proper containers as specified on the chain-of-custody form unless specified in this narrative.

No significant modifications were made to the method. All VPH samples were received preserved properly in methanol with a soil/methanol ratio of 1:1 +/- 25% completely covered by methanol in the proper containers specified on the chain-of-custody form unless specified in this narrative.

Analytical column used for VPH analysis is Restek, Rtx-502.2, 105meter, 0.53mmID, 3um df. Trap used for VPH analysis is Carbopack B/CarboSieveS-III.

Analytical column used for VPH analysis is Restek, Rtx-502.2, 105meter, 0.53mmID, 3um df. Trap used for VPH analysis is Carbopack B/CarboSieveS-III.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Tod Kopyscinski", written in a cursive style.

Tod E. Kopyscinski
Laboratory Director

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: BOT-2 11'

Sampled: 6/28/2019 09:50

Sample ID: 19F1617-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
C19-C36 Aliphatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Unadjusted C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Acenaphthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Acenaphthylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Benzo(a)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Benzo(a)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Benzo(b)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Benzo(g,h,i)perylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Benzo(k)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Chrysene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Dibenz(a,h)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Fluorene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Indeno(1,2,3-cd)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
2-Methylnaphthalene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Naphthalene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Phenanthrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW
Pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/5/19	7/7/19 14:35	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	47.1	40-140	
o-Terphenyl (OTP)	51.8	40-140	
2-Bromonaphthalene	86.6	40-140	
2-Fluorobiphenyl	92.5	40-140	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: BOT-2 11'

Sampled: 6/28/2019 09:50

Sample ID: 19F1617-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.09

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
C5-C8 Aliphatics	ND	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
Unadjusted C9-C12 Aliphatics	ND	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
C9-C12 Aliphatics	ND	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
C9-C10 Aromatics	ND	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
Benzene	ND	0.075	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
Ethylbenzene	0.18	0.075	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
Methyl tert-Butyl Ether (MTBE)	ND	0.075	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
Naphthalene	ND	0.37	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
Toluene	ND	0.075	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
m+p Xylene	1.0	0.15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
o-Xylene	0.40	0.075	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:20	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	111	70-130						6/30/19 5:20	
2,5-Dibromotoluene (PID)	104	70-130						6/30/19 5:20	

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Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: BOT-2 11'

Sampled: 6/28/2019 09:50

Sample ID: 19F1617-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	77.0		% Wt	1		SM 2540G	7/1/19	7/2/19 8:54	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: WSW-1 '

Sampled: 6/28/2019 10:00

Sample ID: 19F1617-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	1700	230	mg/Kg dry	10		MADEP-EPH-04-1.1	7/1/19	7/5/19 17:26	RMW
C19-C36 Aliphatics	14000	2300	mg/Kg dry	100		MADEP-EPH-04-1.1	7/1/19	7/5/19 17:45	RMW
Unadjusted C11-C22 Aromatics	2100	230	mg/Kg dry	10		MADEP-EPH-04-1.1	7/1/19	7/5/19 17:26	RMW
C11-C22 Aromatics	2100	230	mg/Kg dry	10		MADEP-EPH-04-1.1	7/1/19	7/5/19 17:26	RMW
Acenaphthene	1.5	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Acenaphthylene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Anthracene	0.78	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Benzo(a)anthracene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Benzo(a)pyrene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Benzo(b)fluoranthene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Benzo(g,h,i)perylene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Benzo(k)fluoranthene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Chrysene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Dibenz(a,h)anthracene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Fluoranthene	1.2	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Fluorene	1.9	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Indeno(1,2,3-cd)pyrene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
2-Methylnaphthalene	24	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Naphthalene	37	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Phenanthrene	2.4	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Pyrene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 7:11	KLB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Chlorooctadecane (COD)	77.1	40-140							
o-Terphenyl (OTP)	90.3	40-140							
2-Bromonaphthalene	102	40-140							
2-Fluorobiphenyl	116	40-140							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: WSW-1 7'

Sampled: 6/28/2019 10:00

Sample ID: 19F1617-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.07

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	350	260	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
C5-C8 Aliphatics	350	260	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
Unadjusted C9-C12 Aliphatics	1700	260	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
C9-C12 Aliphatics	810	260	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
C9-C10 Aromatics	820	260	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
Benzene	ND	1.3	mg/Kg dry	20	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
Ethylbenzene	4.0	1.3	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
Methyl tert-Butyl Ether (MTBE)	ND	1.3	mg/Kg dry	20	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
Naphthalene	13	6.4	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
Toluene	ND	1.3	mg/Kg dry	20	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
m+p Xylene	12	2.6	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
o-Xylene	17	1.3	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 7:18	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	127	70-130						6/30/19 7:18	
2,5-Dibromotoluene (PID)	106	70-130						6/30/19 7:18	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Sampled: 6/28/2019 10:00

Field Sample #: WSW-1 7'

Sample ID: 19F1617-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	85.2		% Wt	1		SM 2540G	7/1/19	7/2/19 8:55	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: SSW-1 8'

Sampled: 6/28/2019 10:05

Sample ID: 19F1617-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	59	22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
C19-C36 Aliphatics	690	88	mg/Kg dry	4		MADEP-EPH-04-1.1	7/1/19	7/5/19 15:15	RMW
Unadjusted C11-C22 Aromatics	170	22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
C11-C22 Aromatics	170	22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Acenaphthene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Acenaphthylene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Anthracene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Benzo(a)anthracene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Benzo(a)pyrene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Benzo(b)fluoranthene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Benzo(g,h,i)perylene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Benzo(k)fluoranthene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Chrysene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Dibenz(a,h)anthracene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Fluoranthene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Fluorene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Indeno(1,2,3-cd)pyrene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
2-Methylnaphthalene	0.58	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Naphthalene	0.26	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Phenanthrene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Pyrene	ND	0.22	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:24	KLB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Chlorooctadecane (COD)	61.4	40-140							
o-Terphenyl (OTP)	72.6	40-140							
2-Bromonaphthalene	101	40-140							
2-Fluorobiphenyl	110	40-140							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: SSW-1 8'

Sampled: 6/28/2019 10:05

Sample ID: 19F1617-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.14

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	290	110	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
C5-C8 Aliphatics	290	110	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
Unadjusted C9-C12 Aliphatics	920	110	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
C9-C12 Aliphatics	480	110	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
C9-C10 Aromatics	410	110	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
Benzene	ND	0.54	mg/Kg dry	10	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
Ethylbenzene	5.6	0.54	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
Methyl tert-Butyl Ether (MTBE)	ND	0.54	mg/Kg dry	10	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
Naphthalene	7.1	2.7	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
Toluene	0.74	0.54	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
m+p Xylene	23	1.1	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
o-Xylene	8.5	0.54	mg/Kg dry	10		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:27	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	128	70-130						7/1/19 9:27	
2,5-Dibromotoluene (PID)	107	70-130						7/1/19 9:27	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Sampled: 6/28/2019 10:05

Field Sample #: SSW-1 8'

Sample ID: 19F1617-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	90.6		% Wt	1		SM 2540G	7/1/19	7/2/19 8:55	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: NSW-2 4'

Sampled: 6/28/2019 14:00

Sample ID: 19F1617-04

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Unadjusted C11-C22 Aromatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
C11-C22 Aromatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Benzo(a)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Benzo(a)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Benzo(b)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Benzo(g,h,i)perylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Benzo(k)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Chrysene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Dibenz(a,h)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Indeno(1,2,3-cd)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Phenanthrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB
Pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 5:37	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	62.2	40-140	
o-Terphenyl (OTP)	60.7	40-140	
2-Bromonaphthalene	98.1	40-140	
2-Fluorobiphenyl	103	40-140	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: NSW-2 4'

Sampled: 6/28/2019 14:00

Sample ID: 19F1617-04

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.03

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
Unadjusted C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
C9-C10 Aromatics	ND	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
Benzene	ND	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
Ethylbenzene	ND	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
Methyl tert-Butyl Ether (MTBE)	ND	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
Naphthalene	ND	0.29	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
Toluene	ND	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
m+p Xylene	ND	0.12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
o-Xylene	ND	0.059	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 3:52	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	130	70-130							
2,5-Dibromotoluene (PID)	129	70-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Sampled: 6/28/2019 14:00

Field Sample #: NSW-2 4'

Sample ID: 19F1617-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	90.6		% Wt	1		SM 2540G	7/1/19	7/2/19 8:55	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: NSW-3 8'

Sampled: 6/28/2019 14:10

Sample ID: 19F1617-05

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	25	12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
C19-C36 Aliphatics	340	47	mg/Kg dry	4		MADEP-EPH-04-1.1	7/1/19	7/5/19 15:34	RMW
Unadjusted C11-C22 Aromatics	74	12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
C11-C22 Aromatics	74	12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Acenaphthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Acenaphthylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Benzo(a)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Benzo(a)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Benzo(b)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Benzo(g,h,i)perylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Benzo(k)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Chrysene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Dibenz(a,h)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Fluorene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Indeno(1,2,3-cd)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
2-Methylnaphthalene	0.24	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Naphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Phenanthrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 3:43	KLB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Chlorooctadecane (COD)	57.9	40-140							
o-Terphenyl (OTP)	62.3	40-140							
2-Bromonaphthalene	103	40-140							
2-Fluorobiphenyl	111	40-140							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: NSW-3 8'

Sampled: 6/28/2019 14:10

Sample ID: 19F1617-05

Sample Matrix: Soil

Sample Flags: O-01

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.42

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	17	10	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
C5-C8 Aliphatics	17	10	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
Unadjusted C9-C12 Aliphatics	80	10	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
C9-C12 Aliphatics	36	10	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
C9-C10 Aromatics	41	10	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
Benzene	ND	0.050	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
Ethylbenzene	0.24	0.050	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
Naphthalene	1.0	0.25	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
Toluene	ND	0.050	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
m+p Xylene	1.7	0.10	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
o-Xylene	0.83	0.050	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 5:50	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	109	70-130						6/30/19 5:50	
2,5-Dibromotoluene (PID)	115	70-130						6/30/19 5:50	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Sampled: 6/28/2019 14:10

Field Sample #: NSW-3 8'

Sample ID: 19F1617-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	84.9		% Wt	1		SM 2540G	7/1/19	7/2/19 8:55	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: ESW-2 4'

Sampled: 6/28/2019 14:15

Sample ID: 19F1617-06

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	320	46	mg/Kg dry	2		MADEP-EPH-04-1.1	7/1/19	7/5/19 15:53	RMW
C19-C36 Aliphatics	5200	460	mg/Kg dry	20		MADEP-EPH-04-1.1	7/1/19	7/5/19 16:12	RMW
Unadjusted C11-C22 Aromatics	870	230	mg/Kg dry	10		MADEP-EPH-04-1.1	7/1/19	7/5/19 15:53	RMW
C11-C22 Aromatics	870	230	mg/Kg dry	10		MADEP-EPH-04-1.1	7/1/19	7/5/19 15:53	RMW
Acenaphthene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Acenaphthylene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Anthracene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Benzo(a)anthracene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Benzo(a)pyrene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Benzo(b)fluoranthene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Benzo(g,h,i)perylene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Benzo(k)fluoranthene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Chrysene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Dibenz(a,h)anthracene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Fluoranthene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Fluorene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Indeno(1,2,3-cd)pyrene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
2-Methylnaphthalene	1.8	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Naphthalene	1.6	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Phenanthrene	0.30	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB
Pyrene	ND	0.23	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 6:52	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	55.2	40-140	7/4/19 6:52
o-Terphenyl (OTP)	64.3	40-140	7/4/19 6:52
2-Bromonaphthalene	98.2	40-140	7/4/19 6:52
2-Fluorobiphenyl	105	40-140	7/4/19 6:52

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Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: ESW-2 4'

Sampled: 6/28/2019 14:15

Sample ID: 19F1617-06

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.07

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	250	mg/Kg dry	20	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
C5-C8 Aliphatics	ND	250	mg/Kg dry	20	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
Unadjusted C9-C12 Aliphatics	1400	250	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
C9-C12 Aliphatics	670	250	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
C9-C10 Aromatics	640	250	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
Benzene	ND	1.2	mg/Kg dry	20	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
Ethylbenzene	4.1	1.2	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
Methyl tert-Butyl Ether (MTBE)	ND	1.2	mg/Kg dry	20	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
Naphthalene	14	6.2	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
Toluene	ND	1.2	mg/Kg dry	20	RL-05	MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
m+p Xylene	25	2.5	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
o-Xylene	17	1.2	mg/Kg dry	20		MADEP-VPH-Feb 2018 Rev 2.1	7/1/19	7/1/19 9:56	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	116	70-130						7/1/19 9:56	
2,5-Dibromotoluene (PID)	109	70-130						7/1/19 9:56	

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Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Sampled: 6/28/2019 14:15

Field Sample #: ESW-2 4'

Sample ID: 19F1617-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	86.2		% Wt	1		SM 2540G	7/1/19	7/2/19 8:55	JDN

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Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: ESW-3 8'

Sampled: 6/28/2019 14:20

Sample ID: 19F1617-07

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
C19-C36 Aliphatics	65	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Unadjusted C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Acenaphthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Acenaphthylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Benzo(a)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Benzo(a)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Benzo(b)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Benzo(g,h,i)perylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Benzo(k)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Chrysene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Dibenz(a,h)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Fluorene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Indeno(1,2,3-cd)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
2-Methylnaphthalene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Naphthalene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Phenanthrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:02	KLB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Chlorooctadecane (COD)	60.7	40-140							
o-Terphenyl (OTP)	62.8	40-140							
2-Bromonaphthalene	99.4	40-140							
2-Fluorobiphenyl	105	40-140							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: ESW-3 8'

Sampled: 6/28/2019 14:20

Sample ID: 19F1617-07

Sample Matrix: Soil

Sample Flags: O-01

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.44

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
Unadjusted C9-C12 Aliphatics	21	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
C9-C10 Aromatics	12	12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
Benzene	ND	0.058	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
Ethylbenzene	0.27	0.058	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
Methyl tert-Butyl Ether (MTBE)	ND	0.058	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
Naphthalene	0.47	0.29	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
Toluene	ND	0.058	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
m+p Xylene	1.3	0.12	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
o-Xylene	0.13	0.058	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	7/3/19	7/3/19 11:15	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	116	70-130						7/3/19 11:15	
2,5-Dibromotoluene (PID)	121	70-130						7/3/19 11:15	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Sampled: 6/28/2019 14:20

Field Sample #: ESW-3 8'

Sample ID: 19F1617-07

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	78.2		% Wt	1		SM 2540G	7/1/19	7/2/19 8:56	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: BOT-3 11'

Sampled: 6/28/2019 14:25

Sample ID: 19F1617-08

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
C19-C36 Aliphatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Unadjusted C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
C11-C22 Aromatics	ND	13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Acenaphthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Acenaphthylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Benzo(a)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Benzo(a)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Benzo(b)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Benzo(g,h,i)perylene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Benzo(k)fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Chrysene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Dibenz(a,h)anthracene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Fluoranthene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Fluorene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Indeno(1,2,3-cd)pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
2-Methylnaphthalene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Naphthalene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Phenanthrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Pyrene	ND	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	7/1/19	7/4/19 4:21	KLB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Chlorooctadecane (COD)	65.5	40-140							
o-Terphenyl (OTP)	68.3	40-140							
2-Bromonaphthalene	102	40-140							
2-Fluorobiphenyl	105	40-140							

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Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: BOT-3 11'

Sampled: 6/28/2019 14:25

Sample ID: 19F1617-08

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.07

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
C5-C8 Aliphatics	ND	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
Unadjusted C9-C12 Aliphatics	17	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
C9-C12 Aliphatics	15	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
C9-C10 Aromatics	ND	15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
Benzene	ND	0.073	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
Ethylbenzene	0.30	0.073	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
Methyl tert-Butyl Ether (MTBE)	ND	0.073	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
Naphthalene	ND	0.36	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
Toluene	0.12	0.073	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
m+p Xylene	1.6	0.15	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
o-Xylene	0.70	0.073	mg/Kg dry	1		MADEP-VPH-Feb 2018 Rev 2.1	6/29/19	6/30/19 6:19	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	114	70-130						6/30/19 6:19	
2,5-Dibromotoluene (PID)	112	70-130						6/30/19 6:19	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: BOT-3 11'

Sampled: 6/28/2019 14:25

Sample ID: 19F1617-08

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	78.7		% Wt	1		SM 2540G	7/1/19	7/2/19 8:56	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St.

Sample Description:

Work Order: 19F1617

Date Received: 6/28/2019

Field Sample #: MW-2

Sampled: 6/28/2019 12:50

Sample ID: 19F1617-09

Sample Matrix: Ground Water

Petroroleum Hydrocarbons Analyses - VPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	320	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
C5-C8 Aliphatics	320	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
Unadjusted C9-C12 Aliphatics	320	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
C9-C12 Aliphatics	ND	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
C9-C10 Aromatics	320	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
Benzene	ND	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
Ethylbenzene	1.0	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
Naphthalene	ND	5.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
Toluene	ND	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
m+p Xylene	ND	2.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
o-Xylene	2.2	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	7/2/19	7/2/19 19:46	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	105	70-130							
2,5-Dibromotoluene (PID)	102	70-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 3546-MADEP-EPH-04-1.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F1617-02 [WSW-1 7']	B234559	10.0	2.00	07/01/19
19F1617-02RE1 [WSW-1 7']	B234559	10.0	2.00	07/01/19
19F1617-02RE2 [WSW-1 7']	B234559	10.0	2.00	07/01/19
19F1617-03 [SSW-1 8']	B234559	10.0	2.00	07/01/19
19F1617-03RE1 [SSW-1 8']	B234559	10.0	2.00	07/01/19
19F1617-04 [NSW-2 4']	B234559	20.0	2.00	07/01/19
19F1617-05 [NSW-3 8']	B234559	20.0	2.00	07/01/19
19F1617-05RE1 [NSW-3 8']	B234559	20.0	2.00	07/01/19
19F1617-06 [ESW-2 4']	B234559	10.0	2.00	07/01/19
19F1617-06RE1 [ESW-2 4']	B234559	10.0	2.00	07/01/19
19F1617-06RE2 [ESW-2 4']	B234559	10.0	2.00	07/01/19
19F1617-07 [ESW-3 8']	B234559	20.0	2.00	07/01/19
19F1617-08 [BOT-3 11']	B234559	20.0	2.00	07/01/19

Prep Method: SW-846 3546-MADEP-EPH-04-1.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F1617-01RE1 [BOT-2 11']	B234876	20.1	2.00	07/05/19

Prep Method: MA VPH-MADEP-VPH-Feb 2018 Rev 2.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F1617-01 [BOT-2 11']	B234491	16.3	18.8	06/29/19
19F1617-02 [WSW-1 7']	B234491	16.0	17.4	06/29/19
19F1617-04 [NSW-2 4']	B234491	15.5	16.5	06/29/19
19F1617-05 [NSW-3 8']	B234491	21.4	18.2	06/29/19
19F1617-08 [BOT-3 11']	B234491	16.1	18.4	06/29/19

Prep Method: MA VPH-MADEP-VPH-Feb 2018 Rev 2.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F1617-03 [SSW-1 8']	B234530	17.0	16.6	07/01/19
19F1617-06 [ESW-2 4']	B234530	16.1	17.2	07/01/19

Prep Method: MA VPH-MADEP-VPH-Feb 2018 Rev 2.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F1617-07 [ESW-3 8']	B234763	21.6	19.7	07/03/19

Prep Method: MA VPH-MADEP-VPH-Feb 2018 Rev 2.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19F1617-09 [MW-2]	B234663	5	5.00	07/02/19

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
19F1617-01 [BOT-2 11']	B234556	07/01/19
19F1617-02 [WSW-1 7']	B234556	07/01/19
19F1617-03 [SSW-1 8']	B234556	07/01/19
19F1617-04 [NSW-2 4']	B234556	07/01/19
19F1617-05 [NSW-3 8']	B234556	07/01/19
19F1617-06 [ESW-2 4']	B234556	07/01/19
19F1617-07 [ESW-3 8']	B234556	07/01/19
19F1617-08 [BOT-3 11']	B234556	07/01/19

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B234559 - SW-846 3546
Blank (B234559-BLK1)

Prepared & Analyzed: 07/01/19

C9-C18 Aliphatics	ND	10	mg/Kg wet							
C19-C36 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg wet							
C11-C22 Aromatics	ND	10	mg/Kg wet							
Acenaphthene	ND	0.10	mg/Kg wet							
Acenaphthylene	ND	0.10	mg/Kg wet							
Anthracene	ND	0.10	mg/Kg wet							
Benzo(a)anthracene	ND	0.10	mg/Kg wet							
Benzo(a)pyrene	ND	0.10	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.10	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.10	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.10	mg/Kg wet							
Chrysene	ND	0.10	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.10	mg/Kg wet							
Fluoranthene	ND	0.10	mg/Kg wet							
Fluorene	ND	0.10	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg wet							
2-Methylnaphthalene	ND	0.10	mg/Kg wet							
Naphthalene	ND	0.10	mg/Kg wet							
Phenanthrene	ND	0.10	mg/Kg wet							
Pyrene	ND	0.10	mg/Kg wet							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	ND	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							
n-Nonadecane	ND	0.10	mg/Kg wet							
n-Nonane	ND	0.10	mg/Kg wet							
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	0.10	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	ND	0.10	mg/Kg wet							
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
Surrogate: Chlorooctadecane (COD)	3.66		mg/Kg wet	5.00		73.2	40-140			
Surrogate: o-Terphenyl (OTP)	3.70		mg/Kg wet	5.00		74.0	40-140			
Surrogate: 2-Bromonaphthalene	4.59		mg/Kg wet	5.00		91.7	40-140			
Surrogate: 2-Fluorobiphenyl	4.87		mg/Kg wet	5.00		97.3	40-140			

LCS (B234559-BS1)

Prepared & Analyzed: 07/01/19

C9-C18 Aliphatics	19.7	10	mg/Kg wet	30.0		65.8	40-140			
C19-C36 Aliphatics	30.8	10	mg/Kg wet	40.0		76.9	40-140			
Unadjusted C11-C22 Aromatics	61.2	10	mg/Kg wet	85.0		72.0	40-140			
Acenaphthene	3.38	0.10	mg/Kg wet	5.00		67.6	40-140			
Acenaphthylene	3.04	0.10	mg/Kg wet	5.00		60.8	40-140			
Anthracene	3.55	0.10	mg/Kg wet	5.00		71.1	40-140			
Benzo(a)anthracene	3.44	0.10	mg/Kg wet	5.00		68.7	40-140			
Benzo(a)pyrene	3.29	0.10	mg/Kg wet	5.00		65.8	40-140			
Benzo(b)fluoranthene	3.41	0.10	mg/Kg wet	5.00		68.2	40-140			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B234559 - SW-846 3546
LCS (B234559-BS1)

Prepared & Analyzed: 07/01/19

Benzo(g,h,i)perylene	3.34	0.10	mg/Kg wet	5.00		66.8	40-140			
Benzo(k)fluoranthene	3.38	0.10	mg/Kg wet	5.00		67.6	40-140			
Chrysene	3.50	0.10	mg/Kg wet	5.00		70.0	40-140			
Dibenz(a,h)anthracene	3.44	0.10	mg/Kg wet	5.00		68.8	40-140			
Fluoranthene	3.59	0.10	mg/Kg wet	5.00		71.8	40-140			
Fluorene	3.39	0.10	mg/Kg wet	5.00		67.7	40-140			
Indeno(1,2,3-cd)pyrene	3.23	0.10	mg/Kg wet	5.00		64.5	40-140			
2-Methylnaphthalene	2.92	0.10	mg/Kg wet	5.00		58.5	40-140			
Naphthalene	2.93	0.10	mg/Kg wet	5.00		58.6	40-140			
Phenanthrene	3.58	0.10	mg/Kg wet	5.00		71.5	40-140			
Pyrene	3.59	0.10	mg/Kg wet	5.00		71.7	40-140			
n-Decane	2.42	0.10	mg/Kg wet	5.00		48.5	40-140			
n-Docosane	3.74	0.10	mg/Kg wet	5.00		74.7	40-140			
n-Dodecane	2.95	0.10	mg/Kg wet	5.00		58.9	40-140			
n-Eicosane	3.85	0.10	mg/Kg wet	5.00		76.9	40-140			
n-Hexacosane	3.59	0.10	mg/Kg wet	5.00		71.8	40-140			
n-Hexadecane	3.68	0.10	mg/Kg wet	5.00		73.5	40-140			
n-Hexatriacontane	3.47	0.10	mg/Kg wet	5.00		69.3	40-140			
n-Nonadecane	3.77	0.10	mg/Kg wet	5.00		75.4	40-140			
n-Nonane	1.76	0.10	mg/Kg wet	5.00		35.2	30-140			
n-Octacosane	3.51	0.10	mg/Kg wet	5.00		70.3	40-140			
n-Octadecane	3.89	0.10	mg/Kg wet	5.00		77.8	40-140			B
n-Tetracosane	3.66	0.10	mg/Kg wet	5.00		73.3	40-140			
n-Tetradecane	3.34	0.10	mg/Kg wet	5.00		66.8	40-140			
n-Triacontane	3.51	0.10	mg/Kg wet	5.00		70.2	40-140			
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	3.47		mg/Kg wet	5.00		69.5	40-140			
Surrogate: o-Terphenyl (OTP)	3.50		mg/Kg wet	5.00		70.0	40-140			
Surrogate: 2-Bromonaphthalene	4.78		mg/Kg wet	5.00		95.6	40-140			
Surrogate: 2-Fluorobiphenyl	4.95		mg/Kg wet	5.00		98.9	40-140			

LCS Dup (B234559-BSD1)

Prepared & Analyzed: 07/01/19

C9-C18 Aliphatics	20.1	10	mg/Kg wet	30.0		67.0	40-140	1.75	25	
C19-C36 Aliphatics	33.1	10	mg/Kg wet	40.0		82.8	40-140	7.38	25	
Unadjusted C11-C22 Aromatics	65.3	10	mg/Kg wet	85.0		76.8	40-140	6.43	25	
Acenaphthene	3.62	0.10	mg/Kg wet	5.00		72.4	40-140	6.93	25	
Acenaphthylene	3.25	0.10	mg/Kg wet	5.00		64.9	40-140	6.48	25	
Anthracene	3.90	0.10	mg/Kg wet	5.00		78.0	40-140	9.36	25	
Benzo(a)anthracene	3.67	0.10	mg/Kg wet	5.00		73.4	40-140	6.63	25	
Benzo(a)pyrene	3.51	0.10	mg/Kg wet	5.00		70.2	40-140	6.54	25	
Benzo(b)fluoranthene	3.59	0.10	mg/Kg wet	5.00		71.8	40-140	5.07	25	
Benzo(g,h,i)perylene	3.58	0.10	mg/Kg wet	5.00		71.6	40-140	7.03	25	
Benzo(k)fluoranthene	3.64	0.10	mg/Kg wet	5.00		72.7	40-140	7.37	25	
Chrysene	3.81	0.10	mg/Kg wet	5.00		76.1	40-140	8.36	25	
Dibenz(a,h)anthracene	3.77	0.10	mg/Kg wet	5.00		75.3	40-140	9.10	25	
Fluoranthene	3.86	0.10	mg/Kg wet	5.00		77.2	40-140	7.28	25	
Fluorene	3.68	0.10	mg/Kg wet	5.00		73.6	40-140	8.31	25	
Indeno(1,2,3-cd)pyrene	3.42	0.10	mg/Kg wet	5.00		68.4	40-140	5.86	25	
2-Methylnaphthalene	3.10	0.10	mg/Kg wet	5.00		62.0	40-140	5.82	25	
Naphthalene	3.09	0.10	mg/Kg wet	5.00		61.8	40-140	5.33	25	
Phenanthrene	3.90	0.10	mg/Kg wet	5.00		78.1	40-140	8.79	25	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B234559 - SW-846 3546
LCS Dup (B234559-BSD1)

Prepared & Analyzed: 07/01/19

Pyrene	3.83	0.10	mg/Kg wet	5.00		76.6	40-140	6.51	25	
n-Decane	2.27	0.10	mg/Kg wet	5.00		45.4	40-140	6.46	25	
n-Docosane	3.98	0.10	mg/Kg wet	5.00		79.6	40-140	6.35	25	
n-Dodecane	2.85	0.10	mg/Kg wet	5.00		57.1	40-140	3.17	25	
n-Eicosane	4.00	0.10	mg/Kg wet	5.00		80.0	40-140	3.89	25	
n-Hexacosane	3.84	0.10	mg/Kg wet	5.00		76.7	40-140	6.62	25	
n-Hexadecane	3.89	0.10	mg/Kg wet	5.00		77.9	40-140	5.70	25	
n-Hexatriacontane	3.69	0.10	mg/Kg wet	5.00		73.8	40-140	6.24	25	
n-Nonadecane	4.02	0.10	mg/Kg wet	5.00		80.4	40-140	6.35	25	
n-Nonane	1.55	0.10	mg/Kg wet	5.00		31.0	30-140	12.8	25	
n-Octacosane	3.75	0.10	mg/Kg wet	5.00		74.9	40-140	6.38	25	
n-Octadecane	4.14	0.10	mg/Kg wet	5.00		82.7	40-140	6.19	25	B
n-Tetracosane	3.91	0.10	mg/Kg wet	5.00		78.2	40-140	6.43	25	
n-Tetradecane	3.39	0.10	mg/Kg wet	5.00		67.8	40-140	1.54	25	
n-Triacontane	3.74	0.10	mg/Kg wet	5.00		74.8	40-140	6.41	25	
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	3.76		mg/Kg wet	5.00		75.2	40-140			
Surrogate: o-Terphenyl (OTP)	3.82		mg/Kg wet	5.00		76.4	40-140			
Surrogate: 2-Bromonaphthalene	4.77		mg/Kg wet	5.00		95.4	40-140			
Surrogate: 2-Fluorobiphenyl	5.02		mg/Kg wet	5.00		100	40-140			

Batch B234876 - SW-846 3546
Blank (B234876-BLK1)

Prepared: 07/05/19 Analyzed: 07/07/19

C9-C18 Aliphatics	ND	10	mg/Kg wet							
C19-C36 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg wet							
C11-C22 Aromatics	ND	10	mg/Kg wet							
Acenaphthene	ND	0.10	mg/Kg wet							
Acenaphthylene	ND	0.10	mg/Kg wet							
Anthracene	ND	0.10	mg/Kg wet							
Benzo(a)anthracene	ND	0.10	mg/Kg wet							
Benzo(a)pyrene	ND	0.10	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.10	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.10	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.10	mg/Kg wet							
Chrysene	ND	0.10	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.10	mg/Kg wet							
Fluoranthene	ND	0.10	mg/Kg wet							
Fluorene	ND	0.10	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg wet							
2-Methylnaphthalene	ND	0.10	mg/Kg wet							
Naphthalene	ND	0.10	mg/Kg wet							
Phenanthrene	ND	0.10	mg/Kg wet							
Pyrene	ND	0.10	mg/Kg wet							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	ND	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B234876 - SW-846 3546										
Blank (B234876-BLK1)										
Prepared: 07/05/19 Analyzed: 07/07/19										
n-Nonadecane	ND	0.10	mg/Kg wet							L-04
n-Nonane	ND	0.10	mg/Kg wet							
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	0.10	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	ND	0.10	mg/Kg wet							
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
Surrogate: Chlorooctadecane (COD)	3.69		mg/Kg wet	5.00		73.8	40-140			
Surrogate: o-Terphenyl (OTP)	3.73		mg/Kg wet	5.00		74.7	40-140			
Surrogate: 2-Bromonaphthalene	4.46		mg/Kg wet	5.00		89.1	40-140			
Surrogate: 2-Fluorobiphenyl	4.79		mg/Kg wet	5.00		95.8	40-140			
LCS (B234876-BS1)										
Prepared: 07/05/19 Analyzed: 07/07/19										
C9-C18 Aliphatics	19.7	10	mg/Kg wet	30.0		65.7	40-140			
C19-C36 Aliphatics	31.1	10	mg/Kg wet	40.0		77.8	40-140			
Unadjusted C11-C22 Aromatics	56.7	10	mg/Kg wet	85.0		66.7	40-140			
Acenaphthene	3.17	0.10	mg/Kg wet	5.00		63.4	40-140			
Acenaphthylene	2.82	0.10	mg/Kg wet	5.00		56.5	40-140			
Anthracene	3.27	0.10	mg/Kg wet	5.00		65.4	40-140			
Benzo(a)anthracene	3.06	0.10	mg/Kg wet	5.00		61.2	40-140			
Benzo(a)pyrene	2.91	0.10	mg/Kg wet	5.00		58.1	40-140			
Benzo(b)fluoranthene	3.04	0.10	mg/Kg wet	5.00		60.7	40-140			
Benzo(g,h,i)perylene	3.00	0.10	mg/Kg wet	5.00		60.0	40-140			
Benzo(k)fluoranthene	3.01	0.10	mg/Kg wet	5.00		60.3	40-140			
Chrysene	3.13	0.10	mg/Kg wet	5.00		62.6	40-140			
Dibenz(a,h)anthracene	3.08	0.10	mg/Kg wet	5.00		61.6	40-140			
Fluoranthene	3.25	0.10	mg/Kg wet	5.00		65.0	40-140			
Fluorene	3.19	0.10	mg/Kg wet	5.00		63.7	40-140			
Indeno(1,2,3-cd)pyrene	2.84	0.10	mg/Kg wet	5.00		56.9	40-140			
2-Methylnaphthalene	2.69	0.10	mg/Kg wet	5.00		53.8	40-140			
Naphthalene	2.66	0.10	mg/Kg wet	5.00		53.3	40-140			
Phenanthrene	3.31	0.10	mg/Kg wet	5.00		66.2	40-140			
Pyrene	3.22	0.10	mg/Kg wet	5.00		64.4	40-140			
n-Decane	2.08	0.10	mg/Kg wet	5.00		41.7	40-140			
n-Docosane	3.65	0.10	mg/Kg wet	5.00		72.9	40-140			
n-Dodecane	2.76	0.10	mg/Kg wet	5.00		55.2	40-140			
n-Eicosane	3.60	0.10	mg/Kg wet	5.00		72.0	40-140			
n-Hexacosane	3.47	0.10	mg/Kg wet	5.00		69.3	40-140			
n-Hexadecane	3.65	0.10	mg/Kg wet	5.00		73.0	40-140			
n-Hexatriacontane	3.38	0.10	mg/Kg wet	5.00		67.7	40-140			
n-Nonadecane	3.64	0.10	mg/Kg wet	5.00		72.8	40-140			
n-Nonane	1.31	0.10	mg/Kg wet	5.00		26.2	* 30-140			L-04
n-Octacosane	3.39	0.10	mg/Kg wet	5.00		67.8	40-140			
n-Octadecane	3.81	0.10	mg/Kg wet	5.00		76.3	40-140			B
n-Tetracosane	3.56	0.10	mg/Kg wet	5.00		71.3	40-140			
n-Tetradecane	3.28	0.10	mg/Kg wet	5.00		65.6	40-140			
n-Triacontane	3.38	0.10	mg/Kg wet	5.00		67.5	40-140			
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	3.31		mg/Kg wet	5.00		66.3	40-140			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B234876 - SW-846 3546										
LCS (B234876-BS1)					Prepared: 07/05/19 Analyzed: 07/07/19					
Surrogate: o-Terphenyl (OTP)	3.26		mg/Kg wet	5.00		65.2	40-140			
Surrogate: 2-Bromonaphthalene	3.89		mg/Kg wet	5.00		77.7	40-140			
Surrogate: 2-Fluorobiphenyl	4.14		mg/Kg wet	5.00		82.8	40-140			
LCS Dup (B234876-BS1)					Prepared: 07/05/19 Analyzed: 07/07/19					
C9-C18 Aliphatics	20.9	10	mg/Kg wet	30.0		69.7	40-140	5.99	25	
C19-C36 Aliphatics	34.6	10	mg/Kg wet	40.0		86.6	40-140	10.7	25	
Unadjusted C11-C22 Aromatics	64.3	10	mg/Kg wet	85.0		75.7	40-140	12.6	25	
Acenaphthene	3.60	0.10	mg/Kg wet	5.00		72.0	40-140	12.7	25	
Acenaphthylene	3.20	0.10	mg/Kg wet	5.00		64.0	40-140	12.5	25	
Anthracene	3.80	0.10	mg/Kg wet	5.00		76.0	40-140	15.1	25	
Benzo(a)anthracene	3.54	0.10	mg/Kg wet	5.00		70.8	40-140	14.5	25	
Benzo(a)pyrene	3.36	0.10	mg/Kg wet	5.00		67.2	40-140	14.5	25	
Benzo(b)fluoranthene	3.50	0.10	mg/Kg wet	5.00		70.0	40-140	14.2	25	
Benzo(g,h,i)perylene	3.44	0.10	mg/Kg wet	5.00		68.7	40-140	13.6	25	
Benzo(k)fluoranthene	3.46	0.10	mg/Kg wet	5.00		69.2	40-140	13.7	25	
Chrysene	3.61	0.10	mg/Kg wet	5.00		72.2	40-140	14.3	25	
Dibenz(a,h)anthracene	3.55	0.10	mg/Kg wet	5.00		71.0	40-140	14.1	25	
Fluoranthene	3.76	0.10	mg/Kg wet	5.00		75.3	40-140	14.6	25	
Fluorene	3.66	0.10	mg/Kg wet	5.00		73.2	40-140	13.8	25	
Indeno(1,2,3-cd)pyrene	3.27	0.10	mg/Kg wet	5.00		65.5	40-140	14.1	25	
2-Methylnaphthalene	2.97	0.10	mg/Kg wet	5.00		59.4	40-140	9.95	25	
Naphthalene	2.89	0.10	mg/Kg wet	5.00		57.8	40-140	8.12	25	
Phenanthrene	3.84	0.10	mg/Kg wet	5.00		76.8	40-140	14.8	25	
Pyrene	3.73	0.10	mg/Kg wet	5.00		74.7	40-140	14.8	25	
n-Decane	2.15	0.10	mg/Kg wet	5.00		43.0	40-140	2.98	25	
n-Docosane	4.14	0.10	mg/Kg wet	5.00		82.9	40-140	12.8	25	
n-Dodecane	2.87	0.10	mg/Kg wet	5.00		57.5	40-140	4.01	25	
n-Eicosane	4.13	0.10	mg/Kg wet	5.00		82.6	40-140	13.6	25	
n-Hexacosane	3.97	0.10	mg/Kg wet	5.00		79.3	40-140	13.5	25	
n-Hexadecane	4.08	0.10	mg/Kg wet	5.00		81.6	40-140	11.0	25	
n-Hexatriacontane	3.90	0.10	mg/Kg wet	5.00		77.9	40-140	14.1	25	
n-Nonadecane	4.15	0.10	mg/Kg wet	5.00		83.0	40-140	13.1	25	
n-Nonane	1.36	0.10	mg/Kg wet	5.00		27.2 *	30-140	3.91	25	L-04
n-Octacosane	3.87	0.10	mg/Kg wet	5.00		77.3	40-140	13.1	25	
n-Octadecane	4.33	0.10	mg/Kg wet	5.00		86.5	40-140	12.6	25	B
n-Tetracosane	4.06	0.10	mg/Kg wet	5.00		81.2	40-140	13.0	25	
n-Tetradecane	3.58	0.10	mg/Kg wet	5.00		71.5	40-140	8.74	25	
n-Triacontane	3.87	0.10	mg/Kg wet	5.00		77.4	40-140	13.7	25	
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	3.83		mg/Kg wet	5.00		76.6	40-140			
Surrogate: o-Terphenyl (OTP)	3.75		mg/Kg wet	5.00		74.9	40-140			
Surrogate: 2-Bromonaphthalene	4.18		mg/Kg wet	5.00		83.5	40-140			
Surrogate: 2-Fluorobiphenyl	4.68		mg/Kg wet	5.00		93.6	40-140			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B234491 - MA VPH
Blank (B234491-BLK1)

Prepared & Analyzed: 06/29/19

Unadjusted C5-C8 Aliphatics	ND	10	mg/Kg wet							
C5-C8 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C10 Aromatics	ND	10	mg/Kg wet							
Benzene	ND	0.050	mg/Kg wet							
Butylcyclohexane	ND	0.050	mg/Kg wet							
Decane	ND	0.050	mg/Kg wet							
Ethylbenzene	ND	0.050	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/Kg wet							
2-Methylpentane	ND	0.050	mg/Kg wet							
Naphthalene	ND	0.25	mg/Kg wet							
Nonane	ND	0.050	mg/Kg wet							
Pentane	ND	0.050	mg/Kg wet							
Toluene	ND	0.050	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.050	mg/Kg wet							
2,2,4-Trimethylpentane	ND	0.050	mg/Kg wet							
m+p Xylene	ND	0.10	mg/Kg wet							
o-Xylene	ND	0.050	mg/Kg wet							
Surrogate: 2,5-Dibromotoluene (FID)	45.2		µg/L	40.0		113	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	43.8		µg/L	40.0		109	70-130			

LCS (B234491-BS1)

Prepared & Analyzed: 06/29/19

Benzene	0.0468	0.0010	mg/Kg wet	0.0500		93.7	70-130			
Butylcyclohexane	0.0555	0.0010	mg/Kg wet	0.0500		111	70-130			
Decane	0.0436	0.0010	mg/Kg wet	0.0500		87.2	70-130			
Ethylbenzene	0.0473	0.0010	mg/Kg wet	0.0500		94.6	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0448	0.0010	mg/Kg wet	0.0500		89.6	70-130			
2-Methylpentane	0.0438	0.0010	mg/Kg wet	0.0500		87.7	70-130			
Naphthalene	0.0472	0.0050	mg/Kg wet	0.0500		94.4	70-130			
Nonane	0.0524	0.0010	mg/Kg wet	0.0500		105	30-130			
Pentane	0.0389	0.0010	mg/Kg wet	0.0500		77.8	70-130			
Toluene	0.0470	0.0010	mg/Kg wet	0.0500		94.1	70-130			
1,2,4-Trimethylbenzene	0.0474	0.0010	mg/Kg wet	0.0500		94.8	70-130			
2,2,4-Trimethylpentane	0.0424	0.0010	mg/Kg wet	0.0500		84.7	70-130			
m+p Xylene	0.0952	0.0020	mg/Kg wet	0.100		95.2	70-130			
o-Xylene	0.0478	0.0010	mg/Kg wet	0.0500		95.5	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	43.2		µg/L	40.0		108	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	39.5		µg/L	40.0		98.8	70-130			

LCS Dup (B234491-BS1)

Prepared & Analyzed: 06/29/19

Benzene	0.0457	0.0010	mg/Kg wet	0.0500		91.4	70-130	2.49	25	
Butylcyclohexane	0.0544	0.0010	mg/Kg wet	0.0500		109	70-130	2.08	25	
Decane	0.0424	0.0010	mg/Kg wet	0.0500		84.8	70-130	2.80	25	
Ethylbenzene	0.0464	0.0010	mg/Kg wet	0.0500		92.7	70-130	2.05	25	
Methyl tert-Butyl Ether (MTBE)	0.0438	0.0010	mg/Kg wet	0.0500		87.5	70-130	2.36	25	
2-Methylpentane	0.0441	0.0010	mg/Kg wet	0.0500		88.2	70-130	0.587	25	
Naphthalene	0.0453	0.0050	mg/Kg wet	0.0500		90.6	70-130	4.14	25	
Nonane	0.0515	0.0010	mg/Kg wet	0.0500		103	30-130	1.71	25	
Pentane	0.0380	0.0010	mg/Kg wet	0.0500		76.0	70-130	2.31	25	
Toluene	0.0461	0.0010	mg/Kg wet	0.0500		92.1	70-130	2.09	25	
1,2,4-Trimethylbenzene	0.0465	0.0010	mg/Kg wet	0.0500		92.9	70-130	1.95	25	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B234491 - MA VPH
LCS Dup (B234491-BSD1)

Prepared & Analyzed: 06/29/19

2,2,4-Trimethylpentane	0.0417	0.0010	mg/Kg wet	0.0500		83.4	70-130	1.55	25	
m+p Xylene	0.0934	0.0020	mg/Kg wet	0.100		93.4	70-130	1.98	25	
o-Xylene	0.0469	0.0010	mg/Kg wet	0.0500		93.8	70-130	1.83	25	
Surrogate: 2,5-Dibromotoluene (FID)	42.4		µg/L	40.0		106	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	40.7		µg/L	40.0		102	70-130			

Batch B234530 - MA VPH
Blank (B234530-BLK1)

Prepared & Analyzed: 07/01/19

Unadjusted C5-C8 Aliphatics	ND	10	mg/Kg wet							
C5-C8 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C10 Aromatics	ND	10	mg/Kg wet							
Benzene	ND	0.050	mg/Kg wet							
Butylcyclohexane	ND	0.050	mg/Kg wet							
Decane	ND	0.050	mg/Kg wet							
Ethylbenzene	ND	0.050	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/Kg wet							
2-Methylpentane	ND	0.050	mg/Kg wet							
Naphthalene	ND	0.25	mg/Kg wet							
Nonane	ND	0.050	mg/Kg wet							
Pentane	ND	0.050	mg/Kg wet							
Toluene	ND	0.050	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.050	mg/Kg wet							
2,2,4-Trimethylpentane	ND	0.050	mg/Kg wet							
m+p Xylene	ND	0.10	mg/Kg wet							
o-Xylene	ND	0.050	mg/Kg wet							
Surrogate: 2,5-Dibromotoluene (FID)	48.3		µg/L	40.0		121	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	44.5		µg/L	40.0		111	70-130			

LCS (B234530-BS1)

Prepared & Analyzed: 07/01/19

Benzene	0.0470	0.0010	mg/Kg wet	0.0500		93.9	70-130			
Butylcyclohexane	0.0593	0.0010	mg/Kg wet	0.0500		119	70-130			
Decane	0.0478	0.0010	mg/Kg wet	0.0500		95.6	70-130			
Ethylbenzene	0.0472	0.0010	mg/Kg wet	0.0500		94.4	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0466	0.0010	mg/Kg wet	0.0500		93.2	70-130			
2-Methylpentane	0.0465	0.0010	mg/Kg wet	0.0500		93.0	70-130			
Naphthalene	0.0467	0.0050	mg/Kg wet	0.0500		93.4	70-130			
Nonane	0.0559	0.0010	mg/Kg wet	0.0500		112	30-130			
Pentane	0.0407	0.0010	mg/Kg wet	0.0500		81.4	70-130			
Toluene	0.0470	0.0010	mg/Kg wet	0.0500		93.9	70-130			
1,2,4-Trimethylbenzene	0.0478	0.0010	mg/Kg wet	0.0500		95.5	70-130			
2,2,4-Trimethylpentane	0.0465	0.0010	mg/Kg wet	0.0500		92.9	70-130			
m+p Xylene	0.0953	0.0020	mg/Kg wet	0.100		95.3	70-130			
o-Xylene	0.0477	0.0010	mg/Kg wet	0.0500		95.3	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	38.8		µg/L	40.0		97.0	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	37.6		µg/L	40.0		94.1	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B234530 - MA VPH
LCS Dup (B234530-BSD1)

Prepared & Analyzed: 07/01/19

Benzene	0.0462	0.0010	mg/Kg wet	0.0500		92.3	70-130	1.73	25	
Butylcyclohexane	0.0572	0.0010	mg/Kg wet	0.0500		114	70-130	3.71	25	
Decane	0.0459	0.0010	mg/Kg wet	0.0500		91.8	70-130	4.11	25	
Ethylbenzene	0.0469	0.0010	mg/Kg wet	0.0500		93.7	70-130	0.731	25	
Methyl tert-Butyl Ether (MTBE)	0.0458	0.0010	mg/Kg wet	0.0500		91.5	70-130	1.80	25	
2-Methylpentane	0.0457	0.0010	mg/Kg wet	0.0500		91.5	70-130	1.68	25	
Naphthalene	0.0479	0.0050	mg/Kg wet	0.0500		95.8	70-130	2.55	25	
Nonane	0.0551	0.0010	mg/Kg wet	0.0500		110	30-130	1.44	25	
Pentane	0.0394	0.0010	mg/Kg wet	0.0500		78.7	70-130	3.36	25	
Toluene	0.0465	0.0010	mg/Kg wet	0.0500		93.1	70-130	0.894	25	
1,2,4-Trimethylbenzene	0.0475	0.0010	mg/Kg wet	0.0500		95.1	70-130	0.497	25	
2,2,4-Trimethylpentane	0.0448	0.0010	mg/Kg wet	0.0500		89.5	70-130	3.72	25	
m+p Xylene	0.0947	0.0020	mg/Kg wet	0.100		94.7	70-130	0.612	25	
o-Xylene	0.0474	0.0010	mg/Kg wet	0.0500		94.8	70-130	0.507	25	
Surrogate: 2,5-Dibromotoluene (FID)	40.1		µg/L	40.0		100	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	38.7		µg/L	40.0		96.7	70-130			

Batch B234663 - MA VPH
Blank (B234663-BLK1)

Prepared & Analyzed: 07/02/19

Unadjusted C5-C8 Aliphatics	ND	100	µg/L							
C5-C8 Aliphatics	ND	100	µg/L							
Unadjusted C9-C12 Aliphatics	ND	100	µg/L							
C9-C12 Aliphatics	ND	100	µg/L							
C9-C10 Aromatics	ND	100	µg/L							
Benzene	ND	1.0	µg/L							
Butylcyclohexane	ND	1.0	µg/L							
Decane	ND	1.0	µg/L							
Ethylbenzene	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							
2-Methylpentane	ND	1.0	µg/L							
Naphthalene	ND	5.0	µg/L							
Nonane	ND	1.0	µg/L							
Pentane	ND	1.0	µg/L							
Toluene	ND	1.0	µg/L							
1,2,4-Trimethylbenzene	ND	1.0	µg/L							
2,2,4-Trimethylpentane	ND	1.0	µg/L							
m+p Xylene	ND	2.0	µg/L							
o-Xylene	ND	1.0	µg/L							
Surrogate: 2,5-Dibromotoluene (FID)	34.6		µg/L	40.0		86.6	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	34.0		µg/L	40.0		84.9	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B234663 - MA VPH

LCS (B234663-BS1)

Prepared & Analyzed: 07/02/19

Benzene	45.7	1.0	µg/L	50.0		91.4	70-130			
Butylcyclohexane	57.3	1.0	µg/L	50.0		115	70-130			
Decane	46.0	1.0	µg/L	50.0		92.1	70-130			
Ethylbenzene	48.8	1.0	µg/L	50.0		97.7	70-130			
Methyl tert-Butyl Ether (MTBE)	40.8	1.0	µg/L	50.0		81.6	70-130			
2-Methylpentane	43.4	1.0	µg/L	50.0		86.7	70-130			
Naphthalene	49.9	5.0	µg/L	50.0		99.8	70-130			
Nonane	56.0	1.0	µg/L	50.0		112	30-130			
Pentane	44.5	1.0	µg/L	50.0		88.9	70-130			
Toluene	47.5	1.0	µg/L	50.0		94.9	70-130			
1,2,4-Trimethylbenzene	52.2	1.0	µg/L	50.0		104	70-130			
2,2,4-Trimethylpentane	53.7	1.0	µg/L	50.0		107	70-130			
m+p Xylene	100	2.0	µg/L	100		100	70-130			
o-Xylene	51.3	1.0	µg/L	50.0		103	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	43.8		µg/L	40.0		110	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	35.0		µg/L	40.0		87.4	70-130			

LCS Dup (B234663-BSD1)

Prepared & Analyzed: 07/02/19

Benzene	48.6	1.0	µg/L	50.0		97.2	70-130	6.15	25	
Butylcyclohexane	56.9	1.0	µg/L	50.0		114	70-130	0.700	25	
Decane	45.9	1.0	µg/L	50.0		91.9	70-130	0.237	25	
Ethylbenzene	50.8	1.0	µg/L	50.0		102	70-130	3.89	25	
Methyl tert-Butyl Ether (MTBE)	43.5	1.0	µg/L	50.0		87.0	70-130	6.41	25	
2-Methylpentane	46.0	1.0	µg/L	50.0		91.9	70-130	5.84	25	
Naphthalene	50.4	5.0	µg/L	50.0		101	70-130	0.890	25	
Nonane	54.9	1.0	µg/L	50.0		110	30-130	1.86	25	
Pentane	46.2	1.0	µg/L	50.0		92.3	70-130	3.76	25	
Toluene	49.7	1.0	µg/L	50.0		99.3	70-130	4.56	25	
1,2,4-Trimethylbenzene	52.3	1.0	µg/L	50.0		105	70-130	0.220	25	
2,2,4-Trimethylpentane	55.7	1.0	µg/L	50.0		111	70-130	3.76	25	
m+p Xylene	104	2.0	µg/L	100		104	70-130	3.43	25	
o-Xylene	53.1	1.0	µg/L	50.0		106	70-130	3.36	25	
Surrogate: 2,5-Dibromotoluene (FID)	41.3		µg/L	40.0		103	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	36.6		µg/L	40.0		91.4	70-130			

Batch B234763 - MA VPH

Blank (B234763-BLK1)

Prepared & Analyzed: 07/03/19

Unadjusted C5-C8 Aliphatics	ND	10	mg/Kg wet							
C5-C8 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C10 Aromatics	ND	10	mg/Kg wet							
Benzene	ND	0.050	mg/Kg wet							
Butylcyclohexane	ND	0.050	mg/Kg wet							
Decane	ND	0.050	mg/Kg wet							
Ethylbenzene	ND	0.050	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/Kg wet							
2-Methylpentane	ND	0.050	mg/Kg wet							
Naphthalene	ND	0.25	mg/Kg wet							
Nonane	ND	0.050	mg/Kg wet							
Pentane	ND	0.050	mg/Kg wet							
Toluene	ND	0.050	mg/Kg wet							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B234763 - MA VPH										
Blank (B234763-BLK1)										
Prepared & Analyzed: 07/03/19										
1,2,4-Trimethylbenzene	ND	0.050	mg/Kg wet							
2,2,4-Trimethylpentane	ND	0.050	mg/Kg wet							
m+p Xylene	ND	0.10	mg/Kg wet							
o-Xylene	ND	0.050	mg/Kg wet							
Surrogate: 2,5-Dibromotoluene (FID)	39.7		µg/L	40.0		99.2	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	38.1		µg/L	40.0		95.3	70-130			
LCS (B234763-BS1)										
Prepared & Analyzed: 07/03/19										
Benzene	0.0484	0.0010	mg/Kg wet	0.0500		96.8	70-130			
Butylcyclohexane	0.0598	0.0010	mg/Kg wet	0.0500		120	70-130			
Decane	0.0480	0.0010	mg/Kg wet	0.0500		96.0	70-130			
Ethylbenzene	0.0479	0.0010	mg/Kg wet	0.0500		95.8	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0471	0.0010	mg/Kg wet	0.0500		94.3	70-130			
2-Methylpentane	0.0489	0.0010	mg/Kg wet	0.0500		97.8	70-130			
Naphthalene	0.0488	0.0050	mg/Kg wet	0.0500		97.6	70-130			
Nonane	0.0569	0.0010	mg/Kg wet	0.0500		114	30-130			
Pentane	0.0438	0.0010	mg/Kg wet	0.0500		87.5	70-130			
Toluene	0.0482	0.0010	mg/Kg wet	0.0500		96.5	70-130			
1,2,4-Trimethylbenzene	0.0483	0.0010	mg/Kg wet	0.0500		96.6	70-130			
2,2,4-Trimethylpentane	0.0488	0.0010	mg/Kg wet	0.0500		97.7	70-130			
m+p Xylene	0.0970	0.0020	mg/Kg wet	0.100		97.0	70-130			
o-Xylene	0.0485	0.0010	mg/Kg wet	0.0500		97.0	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	40.2		µg/L	40.0		100	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	39.3		µg/L	40.0		98.2	70-130			
LCS Dup (B234763-BS1)										
Prepared & Analyzed: 07/03/19										
Benzene	0.0474	0.0010	mg/Kg wet	0.0500		94.9	70-130	2.02	25	
Butylcyclohexane	0.0573	0.0010	mg/Kg wet	0.0500		115	70-130	4.33	25	
Decane	0.0456	0.0010	mg/Kg wet	0.0500		91.2	70-130	5.19	25	
Ethylbenzene	0.0475	0.0010	mg/Kg wet	0.0500		95.0	70-130	0.811	25	
Methyl tert-Butyl Ether (MTBE)	0.0467	0.0010	mg/Kg wet	0.0500		93.3	70-130	1.00	25	
2-Methylpentane	0.0478	0.0010	mg/Kg wet	0.0500		95.5	70-130	2.36	25	
Naphthalene	0.0485	0.0050	mg/Kg wet	0.0500		97.0	70-130	0.631	25	
Nonane	0.0557	0.0010	mg/Kg wet	0.0500		111	30-130	2.17	25	
Pentane	0.0422	0.0010	mg/Kg wet	0.0500		84.3	70-130	3.70	25	
Toluene	0.0475	0.0010	mg/Kg wet	0.0500		95.1	70-130	1.47	25	
1,2,4-Trimethylbenzene	0.0480	0.0010	mg/Kg wet	0.0500		96.1	70-130	0.527	25	
2,2,4-Trimethylpentane	0.0471	0.0010	mg/Kg wet	0.0500		94.1	70-130	3.68	25	
m+p Xylene	0.0961	0.0020	mg/Kg wet	0.100		96.1	70-130	0.977	25	
o-Xylene	0.0482	0.0010	mg/Kg wet	0.0500		96.5	70-130	0.577	25	
Surrogate: 2,5-Dibromotoluene (FID)	39.3		µg/L	40.0		98.3	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	38.0		µg/L	40.0		95.1	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
B	Analyte is found in the associated laboratory blank as well as in the sample.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
O-01	Soil/methanol ratio does not meet method specifications. Excess amount of soil. Sample was completely covered with methanol, but with less than the method-specified amount.
RL-05	Elevated reporting limit due to high concentration of target compounds. MA CAM reporting limit not met.

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>MADEP-EPH-04-1.1 in Soil</i>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<i>MADEP-EPH-04-1.1 in Water</i>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<i>MADEP-VPH-Feb 2018 Rev 2.1 in Soil</i>	
Unadjusted C5-C8 Aliphatics	CT,NC,ME,NH-P
C5-C8 Aliphatics	CT,NC,ME,NH-P

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
MADEP-VPH-Feb 2018 Rev 2.1 in Soil	
Unadjusted C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C10 Aromatics	CT,NC,ME,NH-P
Benzene	CT,NC,ME,NH-P
Ethylbenzene	CT,NC,ME,NH-P
Methyl tert-Butyl Ether (MTBE)	CT,NC,ME,NH-P
Naphthalene	CT,NC,ME,NH-P
Toluene	CT,NC,ME,NH-P
m+p Xylene	CT,NC,ME,NH-P
o-Xylene	CT,NC,ME,NH-P

MADEP-VPH-Feb 2018 Rev 2.1 in Water

Unadjusted C5-C8 Aliphatics	CT,NC,ME,NH-P
C5-C8 Aliphatics	CT,NC,ME,NH-P
Unadjusted C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C10 Aromatics	CT,NC,ME,NH-P
Benzene	CT,NC,ME,NH-P
Ethylbenzene	CT,NC,ME,NH-P
Methyl tert-Butyl Ether (MTBE)	CT,NC,ME,NH-P
Naphthalene	CT,NC,ME,NH-P
Toluene	CT,NC,ME,NH-P
m+p Xylene	CT,NC,ME,NH-P
o-Xylene	CT,NC,ME,NH-P

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2019
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020



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http://www.contestlabs.com
CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

Page ____ of ____

Company Name: Parker Environmental
Address: 92 Walnut St, State St
Phone: 978-223-4684
Project Name: 329 WISK ST
Project Location: 329 WISK ST
Project Number: 57
Project Manager: Scott Parker
Con-Test Quote Name/Number: 57
Invoice Recipient: 57
Sampled By: 57

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date: 7/8
Rush Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐
Data Delivery
Format: PDF ☐ EXCEL ☐
Other: ☐
CLP Like Data Pkg Required: ☐
Email To: ☐
Fax To #: ☐

ANALYSIS REQUESTED

of Containers
Preservation Code
Container Code
Distilled Matrix Samples
☐ Field Filtered
☐ Lab to Filter
Orthogonal Matrix Samples
☐ Field Filtered
☐ Lab to Filter

1 Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)
2 Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)
3 Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
1	BOT-2 11'	6/28 9:50	6/28 10:00		X	5	
2	WSW-1 7'	6/28 10:05	6/28 14:00		X	5	
3	SSW-1 8'	6/28 14:10	6/28 14:15		X	5	
4	NSW-2 4'	6/28 14:20	6/28 14:25		X	5	
5	NSW-3 8'	6/28 14:25	6/28 14:30		X	5	
6	ASW-2 4'	6/28 14:30	6/28 14:35		X	5	
7	ESW-3 8'	6/28 14:35	6/28 14:40		X	5	
8	BOT-3 11'	6/28 14:40	6/28 14:45		X	5	
9	MW-2	6/28 14:45	6/28 14:50		X	6W	

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) [Signature] Date/Time: 6/28/14 16:45
Received by: (signature) [Signature] Date/Time: 6/28/14 16:45
Relinquished by: (signature) [Signature] Date/Time: 6/28/14 16:45
Received by: (signature) [Signature] Date/Time: 6/28/14 16:45
Relinquished by: (signature) [Signature] Date/Time: 6/28/14 16:45
Received by: (signature) [Signature] Date/Time: 6/28/14 16:45
Relinquished by: (signature) [Signature] Date/Time: 6/28/14 16:45
Received by: (signature) [Signature] Date/Time: 6/28/14 16:45

Detection Limit Requirements
MA ☐ MA MCP Required
MCP Certification Form Required
CT ☐ CT RCP Required
RCP Certification Form Required
Other: ☐ MA State DW Required
PWSID #

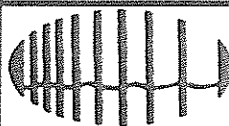
Project Entity
Government ☐ Municipality ☐ MWRA ☐ WRTA ☐ Other ☐
Federal ☐ 21 J ☐ School ☐ Chromatogram ☐
City ☐ Brownfield ☐ MBTA ☐ AIHA-LAP, LLC ☐

con-test ANALYTICAL LABORATORY
www.contestlabs.com

NELAP and AIHA-LAP, LLC Accredited

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

I Have Not Confirmed Sample Container
Numbers With Lab Staff Before Relinquishing
Over Samples _____



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False
Statement will be brought to the attention of the Client - State True or False

Client Porter Environmental

Received By ct Date 6/28/2019 Time 1645

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
Direct from Sampling T Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C F By Gun # 1 Actual Temp - 14.3
By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all Client T Analysis T Sampler Name F

pertinent Information? Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? N/A Acid _____ Base _____

Vials	#	Containers:	#				#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-	<u>8</u>	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	<u>13</u>
DI-		Other Glass		Other Plastic	<u>3</u>	Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory				Project #: 19F1617	
Project Location: 329 High St.				RTN:	
This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)] 19F1617-01 thru 19F1617-09					
Matrices: Soil		Water			
CAM Protocol (check all that below)					
8260 VOC CAM II A ()	7470/7471 Hg CAM IIIB ()	MassDEP VPH CAM IV A (X)	8082 PCB CAM V A ()	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()
8270 SVOC CAM II B ()	7010 Metals CAM III C ()	MassDEP VPH CAM IV C ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
6010 Metals CAM III A ()	6020 Metals CAM III D ()	MassDEP EPH CAM IV B (X)	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
Affirmative response to Questions A through F is required for "Presumptive Certainty" status					
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?				<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
A response to questions G, H and I below is required for "Presumptive Certainty" status					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.					
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.					
Signature: <u>Tod E. Kopyscinski</u>		Position: Laboratory Director			
Printed Name: <u>Tod E. Kopyscinski</u>		Date: <u>07/08/19</u>			

Table of Contents

Sample Summary	3
Case Narrative	4
Sample Results	5
19F1612-01	5
19F1612-02	7
19F1612-03	9
Sample Preparation Information	11
QC Data	12
Petroleum Hydrocarbons Analyses - EPH	12
B234480	12
Flag/Qualifier Summary	15
Certifications	16
Chain of Custody/Sample Receipt	18

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332Parker Environmental Corp
97 Walnut Street
Clinton, MA 01510
ATTN: Scott Parker

REPORT DATE: 7/5/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19F1612

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 329 High St

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
ESW-1 3'	19F1612-01	Soil		MADEP-EPH-04-1.1 SM 2540G	
NSW-1 3'	19F1612-02	Soil		MADEP-EPH-04-1.1 SM 2540G	
Bottom-1 6'	19F1612-03	Soil		MADEP-EPH-04-1.1 SM 2540G	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

MADEP-EPH-04-1.1

Qualifications:

B

Analyte is found in the associated laboratory blank as well as in the sample.

Analyte & Samples(s) Qualified:

n-Octadecane

B234480-BS1, B234480-BSD1

MADEP-EPH-04-1.1

SPE cartridge contamination with non-petroleum compounds, if present, is verified by GC/MS in each method blank per extraction batch and excluded from C 11-C22 aromatic range fraction in all samples in the batch. No significant modifications were made to the method.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Lisa Worthington", is written over a light gray rectangular background.

Lisa A. Worthington

Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St

Sample Description:

Work Order: 19F1612

Date Received: 6/28/2019

Field Sample #: ESW-1 3'

Sampled: 6/27/2019 12:45

Sample ID: 19F1612-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
C11-C22 Aromatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Benzo(a)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Benzo(a)pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Benzo(b)fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Benzo(g,h,i)perylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Benzo(k)fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Chrysene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Phenanthrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB
Pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:40	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	68.2	40-140	
o-Terphenyl (OTP)	65.1	40-140	
2-Bromonaphthalene	93.6	40-140	
2-Fluorobiphenyl	97.5	40-140	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St

Sample Description:

Work Order: 19F1612

Date Received: 6/28/2019

Sampled: 6/27/2019 12:45

Field Sample #: ESW-1 3'

Sample ID: 19F1612-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	94.9		% Wt	1		SM 2540G	7/1/19	7/2/19 8:33	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St

Sample Description:

Work Order: 19F1612

Date Received: 6/28/2019

Field Sample #: NSW-1 3'

Sampled: 6/27/2019 12:55

Sample ID: 19F1612-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Unadjusted C11-C22 Aromatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
C11-C22 Aromatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Benzo(a)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Benzo(a)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Benzo(b)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Benzo(g,h,i)perylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Benzo(k)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Chrysene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Dibenz(a,h)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Indeno(1,2,3-cd)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Phenanthrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB
Pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 4:59	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	69.3	40-140	
o-Terphenyl (OTP)	71.7	40-140	
2-Bromonaphthalene	95.0	40-140	
2-Fluorobiphenyl	99.7	40-140	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St

Sample Description:

Work Order: 19F1612

Date Received: 6/28/2019

Sampled: 6/27/2019 12:55

Field Sample #: NSW-1 3'

Sample ID: 19F1612-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	93.6		% Wt	1		SM 2540G	7/1/19	7/2/19 8:34	JDN

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Project Location: 329 High St

Sample Description:

Work Order: 19F1612

Date Received: 6/28/2019

Field Sample #: Bottom-1 6'

Sampled: 6/27/2019 12:50

Sample ID: 19F1612-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
C19-C36 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Unadjusted C11-C22 Aromatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
C11-C22 Aromatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Acenaphthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Acenaphthylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Benzo(a)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Benzo(a)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Benzo(b)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Benzo(g,h,i)perylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Benzo(k)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Chrysene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Dibenz(a,h)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Fluorene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Indeno(1,2,3-cd)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
2-Methylnaphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Naphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Phenanthrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/29/19	7/4/19 5:18	KLB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Chlorooctadecane (COD)	67.3	40-140							
o-Terphenyl (OTP)	64.7	40-140							
2-Bromonaphthalene	93.5	40-140							
2-Fluorobiphenyl	97.7	40-140							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 329 High St

Sample Description:

Work Order: 19F1612

Date Received: 6/28/2019

Field Sample #: Bottom-1 6'

Sampled: 6/27/2019 12:50

Sample ID: 19F1612-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	83.9		% Wt	1		SM 2540G	7/1/19	7/2/19 8:34	JDN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method: SW-846 3546-MADEP-EPH-04-1.1**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19F1612-01 [ESW-1 3']	B234480	20.2	2.00	06/29/19
19F1612-02 [NSW-1 3']	B234480	20.0	2.00	06/29/19
19F1612-03 [Bottom-1 6']	B234480	20.1	2.00	06/29/19

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
19F1612-01 [ESW-1 3']	B234574	07/01/19
19F1612-02 [NSW-1 3']	B234574	07/01/19
19F1612-03 [Bottom-1 6']	B234574	07/01/19

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B234480 - SW-846 3546
Blank (B234480-BLK1)

Prepared: 06/29/19 Analyzed: 06/30/19

C9-C18 Aliphatics	ND	10	mg/Kg wet							
C19-C36 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg wet							
C11-C22 Aromatics	ND	10	mg/Kg wet							
Acenaphthene	ND	0.10	mg/Kg wet							
Acenaphthylene	ND	0.10	mg/Kg wet							
Anthracene	ND	0.10	mg/Kg wet							
Benzo(a)anthracene	ND	0.10	mg/Kg wet							
Benzo(a)pyrene	ND	0.10	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.10	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.10	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.10	mg/Kg wet							
Chrysene	ND	0.10	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.10	mg/Kg wet							
Fluoranthene	ND	0.10	mg/Kg wet							
Fluorene	ND	0.10	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg wet							
2-Methylnaphthalene	ND	0.10	mg/Kg wet							
Naphthalene	ND	0.10	mg/Kg wet							
Phenanthrene	ND	0.10	mg/Kg wet							
Pyrene	ND	0.10	mg/Kg wet							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	ND	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							
n-Nonadecane	ND	0.10	mg/Kg wet							
n-Nonane	ND	0.10	mg/Kg wet							
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	0.13	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	ND	0.10	mg/Kg wet							
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
Surrogate: Chlorooctadecane (COD)	4.00		mg/Kg wet	5.00		80.0	40-140			
Surrogate: o-Terphenyl (OTP)	4.11		mg/Kg wet	5.00		82.1	40-140			
Surrogate: 2-Bromonaphthalene	4.64		mg/Kg wet	5.00		92.8	40-140			
Surrogate: 2-Fluorobiphenyl	4.94		mg/Kg wet	5.00		98.8	40-140			

LCS (B234480-BS1)

Prepared: 06/29/19 Analyzed: 06/30/19

C9-C18 Aliphatics	22.8	10	mg/Kg wet	30.0		76.1	40-140			
C19-C36 Aliphatics	39.3	10	mg/Kg wet	40.0		98.2	40-140			
Unadjusted C11-C22 Aromatics	73.2	10	mg/Kg wet	85.0		86.1	40-140			
Acenaphthene	3.98	0.10	mg/Kg wet	5.00		79.6	40-140			
Acenaphthylene	3.50	0.10	mg/Kg wet	5.00		70.0	40-140			
Anthracene	4.48	0.10	mg/Kg wet	5.00		89.5	40-140			
Benzo(a)anthracene	4.26	0.10	mg/Kg wet	5.00		85.2	40-140			
Benzo(a)pyrene	4.02	0.10	mg/Kg wet	5.00		80.4	40-140			
Benzo(b)fluoranthene	4.20	0.10	mg/Kg wet	5.00		83.9	40-140			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B234480 - SW-846 3546

LCS (B234480-BS1)

Prepared: 06/29/19 Analyzed: 06/30/19

Benzo(g,h,i)perylene	4.06	0.10	mg/Kg wet	5.00		81.1	40-140			
Benzo(k)fluoranthene	4.14	0.10	mg/Kg wet	5.00		82.7	40-140			
Chrysene	4.36	0.10	mg/Kg wet	5.00		87.1	40-140			
Dibenz(a,h)anthracene	4.23	0.10	mg/Kg wet	5.00		84.5	40-140			
Fluoranthene	4.50	0.10	mg/Kg wet	5.00		90.0	40-140			
Fluorene	4.15	0.10	mg/Kg wet	5.00		82.9	40-140			
Indeno(1,2,3-cd)pyrene	3.84	0.10	mg/Kg wet	5.00		76.8	40-140			
2-Methylnaphthalene	3.25	0.10	mg/Kg wet	5.00		64.9	40-140			
Naphthalene	3.16	0.10	mg/Kg wet	5.00		63.1	40-140			
Phenanthrene	4.50	0.10	mg/Kg wet	5.00		90.0	40-140			
Pyrene	4.47	0.10	mg/Kg wet	5.00		89.4	40-140			
n-Decane	2.37	0.10	mg/Kg wet	5.00		47.3	40-140			
n-Docosane	4.76	0.10	mg/Kg wet	5.00		95.1	40-140			
n-Dodecane	3.19	0.10	mg/Kg wet	5.00		63.7	40-140			
n-Eicosane	4.74	0.10	mg/Kg wet	5.00		94.8	40-140			
n-Hexacosane	4.54	0.10	mg/Kg wet	5.00		90.7	40-140			
n-Hexadecane	4.67	0.10	mg/Kg wet	5.00		93.4	40-140			
n-Hexatriacontane	4.24	0.10	mg/Kg wet	5.00		84.8	40-140			
n-Nonadecane	4.79	0.10	mg/Kg wet	5.00		95.7	40-140			
n-Nonane	1.51	0.10	mg/Kg wet	5.00		30.3	30-140			
n-Octacosane	4.42	0.10	mg/Kg wet	5.00		88.4	40-140			
n-Octadecane	4.96	0.10	mg/Kg wet	5.00		99.2	40-140			B
n-Tetracosane	4.65	0.10	mg/Kg wet	5.00		93.0	40-140			
n-Tetradecane	4.00	0.10	mg/Kg wet	5.00		79.9	40-140			
n-Triacontane	4.40	0.10	mg/Kg wet	5.00		88.0	40-140			
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	4.42		mg/Kg wet	5.00		88.5	40-140			
Surrogate: o-Terphenyl (OTP)	4.33		mg/Kg wet	5.00		86.6	40-140			
Surrogate: 2-Bromonaphthalene	4.36		mg/Kg wet	5.00		87.1	40-140			
Surrogate: 2-Fluorobiphenyl	4.62		mg/Kg wet	5.00		92.5	40-140			

LCS Dup (B234480-BSD1)

Prepared: 06/29/19 Analyzed: 06/30/19

C9-C18 Aliphatics	24.5	10	mg/Kg wet	30.0		81.8	40-140	7.20	25	
C19-C36 Aliphatics	38.9	10	mg/Kg wet	40.0		97.3	40-140	0.933	25	
Unadjusted C11-C22 Aromatics	74.5	10	mg/Kg wet	85.0		87.7	40-140	1.83	25	
Acenaphthene	4.31	0.10	mg/Kg wet	5.00		86.1	40-140	7.85	25	
Acenaphthylene	3.86	0.10	mg/Kg wet	5.00		77.3	40-140	9.89	25	
Anthracene	4.48	0.10	mg/Kg wet	5.00		89.5	40-140	0.0268	25	
Benzo(a)anthracene	4.23	0.10	mg/Kg wet	5.00		84.6	40-140	0.704	25	
Benzo(a)pyrene	4.03	0.10	mg/Kg wet	5.00		80.7	40-140	0.417	25	
Benzo(b)fluoranthene	4.18	0.10	mg/Kg wet	5.00		83.5	40-140	0.475	25	
Benzo(g,h,i)perylene	4.13	0.10	mg/Kg wet	5.00		82.6	40-140	1.78	25	
Benzo(k)fluoranthene	4.16	0.10	mg/Kg wet	5.00		83.2	40-140	0.610	25	
Chrysene	4.34	0.10	mg/Kg wet	5.00		86.8	40-140	0.435	25	
Dibenz(a,h)anthracene	4.25	0.10	mg/Kg wet	5.00		85.1	40-140	0.675	25	
Fluoranthene	4.46	0.10	mg/Kg wet	5.00		89.2	40-140	0.839	25	
Fluorene	4.32	0.10	mg/Kg wet	5.00		86.3	40-140	4.02	25	
Indeno(1,2,3-cd)pyrene	3.92	0.10	mg/Kg wet	5.00		78.4	40-140	2.11	25	
2-Methylnaphthalene	3.73	0.10	mg/Kg wet	5.00		74.6	40-140	13.9	25	
Naphthalene	3.72	0.10	mg/Kg wet	5.00		74.4	40-140	16.4	25	
Phenanthrene	4.53	0.10	mg/Kg wet	5.00		90.6	40-140	0.611	25	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B234480 - SW-846 3546										
LCS Dup (B234480-BSD1)					Prepared: 06/29/19 Analyzed: 06/30/19					
Pyrene	4.43	0.10	mg/Kg wet	5.00		88.7	40-140	0.838	25	
n-Decane	2.73	0.10	mg/Kg wet	5.00		54.5	40-140	14.1	25	
n-Docosane	4.68	0.10	mg/Kg wet	5.00		93.6	40-140	1.61	25	
n-Dodecane	3.63	0.10	mg/Kg wet	5.00		72.5	40-140	12.9	25	
n-Eicosane	4.65	0.10	mg/Kg wet	5.00		93.0	40-140	2.00	25	
n-Hexacosane	4.46	0.10	mg/Kg wet	5.00		89.1	40-140	1.81	25	
n-Hexadecane	4.74	0.10	mg/Kg wet	5.00		94.7	40-140	1.38	25	
n-Hexatriacontane	4.36	0.10	mg/Kg wet	5.00		87.3	40-140	2.91	25	
n-Nonadecane	4.71	0.10	mg/Kg wet	5.00		94.1	40-140	1.71	25	
n-Nonane	1.79	0.10	mg/Kg wet	5.00		35.7	30-140	16.6	25	
n-Octacosane	4.34	0.10	mg/Kg wet	5.00		86.9	40-140	1.72	25	
n-Octadecane	4.92	0.10	mg/Kg wet	5.00		98.4	40-140	0.789	25	B
n-Tetracosane	4.57	0.10	mg/Kg wet	5.00		91.4	40-140	1.73	25	
n-Tetradecane	4.32	0.10	mg/Kg wet	5.00		86.4	40-140	7.73	25	
n-Triacontane	4.34	0.10	mg/Kg wet	5.00		86.8	40-140	1.44	25	
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	4.23		mg/Kg wet	5.00		84.7	40-140			
Surrogate: o-Terphenyl (OTP)	4.30		mg/Kg wet	5.00		86.0	40-140			
Surrogate: 2-Bromonaphthalene	4.43		mg/Kg wet	5.00		88.7	40-140			
Surrogate: 2-Fluorobiphenyl	4.68		mg/Kg wet	5.00		93.5	40-140			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
B	Analyte is found in the associated laboratory blank as well as in the sample.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>MADEP-EPH-04-1.1 in Soil</i>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<i>MADEP-EPH-04-1.1 in Water</i>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2019
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

19F1612

<http://www.contestlabs.com>

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

Page ____ of ____

Phone: 413-525-2332

Fax: 413-525-6405

Email: info@contestlabs.com

CHAIN OF CUSTODY RECORD

Company Name: Parker Enviro, Inc. 1
Address: 12 Walnut St Clinton
Phone: 878-223-4263
Project Name:
Project Location: 329 HIGH ST
Project Number:
Project Manager: Seth Parker
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By:

Requested Turn around Time			
7-Day	<input type="checkbox"/>	10-Day	<input type="checkbox"/>
Due Date: 7/8			
Rush Approval Required			
1-Day	<input type="checkbox"/>	3-Day	<input type="checkbox"/>
2-Day	<input type="checkbox"/>	4-Day	<input type="checkbox"/>
Data Delivery			
Format:	PDF	<input checked="" type="checkbox"/> EXCEL	<input checked="" type="checkbox"/>
Other: _____			
CLP Like Data Pkg Required:			<input type="checkbox"/>
Email To: _____			
Fax To #: _____			

ANALYSIS REQUESTED

of Containers
² Preservation Code
³ Container Code
<i>Dissolved Metals Samples</i>
<input type="radio"/> Field Filtered
<input type="radio"/> Lab to Filter
<i>Orthophosphate Samples</i>
<input type="radio"/> Field Filtered
<input type="radio"/> Lab to Filter

1 Matrix Codes:
 GW = Ground Water
 WW = Waste Water
 DW = Drinking Water
 A = Air
 S = Soil
 SL = Sludge
 SOL = Solid
 O = Other (please
 define)

2 Preservation Codes:
 I = Iced
 H = HCL
 M = Methanol
 N = Nitric Acid
 S = Sulfuric Acid
 B = Sodium Bisulfate
 X = Sodium Hydroxide
 T = Sodium
 Thiosulfate
 O = Other (please
 define)

³ Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please
define)

[illegible]

Comments: Per client - only run EPH 7/1/19, mmk

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) <i>[Signature]</i>	Date/Time: 6/28/19 16:45	Detection Limit Requirements		Special Requirements			
		MA		<input type="checkbox"/>	MA MCP Required		
Received by: (signature) <i>[Signature]</i> 14.3 TP	Date/Time: 6/28/19 16:45			<input type="checkbox"/>	MCP Certification Form Required		
				<input type="checkbox"/>	CT RCP Required		
Relinquished by: (signature)	Date/Time:	CT			RCP Certification Form Required		
Received by: (signature)	Date/Time:			<input type="checkbox"/>	MA State DW Required		
		Other:			PWSID #		
Relinquished by: (signature)	Date/Time:	Project Entity					
		<input type="checkbox"/>	Government	<input type="checkbox"/>	Municipality	<input type="checkbox"/>	MWRA
Received by: (signature)	Date/Time:	<input type="checkbox"/>	Federal	<input type="checkbox"/>	21 J	<input type="checkbox"/>	School
		<input type="checkbox"/>	City	<input type="checkbox"/>	Brownfield	<input type="checkbox"/>	MBTA

Page 18 of 20



NELAC and AIHA-LAP, LLC Accredited

Other	<u>PCB ONLY</u>
<input type="checkbox"/> Chromatogram	<input type="checkbox"/> Soxhlet
<input type="checkbox"/> AIHA-LAP, LLC	<input type="checkbox"/> Non Soxhlet

PCB ONLY

☐ Soxhlet

☐ Non Soxhlet

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False

Statement will be brought to the attention of the Client - State True or False

Client Porter Environmental

Received By CF Date 6/28/2019 Time 1645

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C F By Gun # 1 Actual Temp - 14.3
By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all Client T Analysis T Sampler Name F

pertinent Information? Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Are there Rushes? F

Are there Short Holds? F

Is there enough Volume? T

Is there Headspace where applicable? N/A

Proper Media/Containers Used? T

Were trip blanks received? F

Do all samples have the proper pH? N/A

Who was notified? _____

Who was notified? _____

Who was notified? _____

MS/MSD? F

Is splitting samples required? F

On COC? F

Acid _____ Base _____

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear
DI-		Other Glass		Other Plastic	<u>3</u>	Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory				Project #: 19F1612	
Project Location: 329 High St				RTN:	
This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)] 19F1612-01 thru 19F1612-03					
Matrices: Soil					
CAM Protocol (check all that below)					
8260 VOC CAM II A ()	7470/7471 Hg CAM IIIB ()	MassDEP VPH CAM IV A ()	8082 PCB CAM V A ()	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()
8270 SVOC CAM II B ()	7010 Metals CAM III C ()	MassDEP VPH CAM IV C ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
6010 Metals CAM III A ()	6020 Metals CAM III D ()	MassDEP EPH CAM IV B (X)	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
Affirmative response to Questions A through F is required for "Presumptive Certainty" status					
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?				<input type="checkbox"/> Yes <input type="checkbox"/> No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
A response to questions G, H and I below is required for "Presumptive Certainty" status					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.					
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.					
Signature: <u>Lisa Worthington</u>		Position: <u>Technical Representative</u>			
Printed Name: <u>Lisa A. Worthington</u>		Date: <u>07/05/19</u>			

APPENDIX D
BORING LOGS

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG: B-1

Location: 329 High Street

Project: Clinton

Client:

Drilling Company: Geosearch, Inc.

Driller:

Method: GeoProbe

Date Start: 6/14/2019

Date End:

Logged By: PP

Total Depth: 10

Screen Length: N/A

Diameter: N/A

Type: N/A

Slot Size: N/A

Casing Length: N/A

Diameter: N/A

Type: N/A

Checked By: SKP

Water Level: NA

Notes:

Testing consists of PID headspace response (ppmv)

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set							
2			B-1*	0-5'	N/A	60"/24"	Pavement Brown-Red Fine to medium Sand and silt with some gravel	0
4								
6			B-1	5-10'	N/A	60"/48"	Grey-green Fine Sand and silt	2,616
8								
10							End of Exploration	
12								
14								
16								
18								
20								

* - sample taken for laboratory analysis

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG: B-2

Location:	329 High Street	Total Depth:	10'	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
4			B-2	0-5'	N/A	60"/24"	Brown-Red Fine to medium Sand and silt with some gravel	0
8								
12			SB-02	5-10'	N/A	60"/46"	Grey-green Fine Sand and silt	325
16								
20							End of Exploration	
24								
28								
32								
36								
40								
44								

* - sample taken

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG:

B-3

Location:	329 High Street	Total Depth:	10'	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
4			B-3	0-5'	N/A	60"/34"	Fill black-Red silty sand	0
8								
12			B-3	5-10'	N/A	60"/26"	Grey-green Fine Sand and silt	0
16								
20							End of Exploration	
24								
28								
32								
36								
40								
44								

* - sample taken

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG:

B-4

Location:	329 High Street	Total Depth:	10'	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
4			B-04	0-5'	N/A	60"/27"	Fill - Black-Red silty sand	0
8								
12			B-4	5-10'	N/A	60"/40"	Grey-green Fine Sand and silt	0
16								
20							End of Exploration	
24								
28								
32								
36								
40								
44								

* - sample taken

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG:

B-5

Location:	329 High Street	Total Depth:	10'	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
4			B-5	0-5'	N/A	60"/23"	Fill black-Red silty sand	0
8								
12			B-5	5-10'	N/A	60"/46"	Grey-green Fine Sand and silt	148
16								
20							End of Exploration	
24								
28								
32								
36								
40								
44								

* - sample taken

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG:

B-6

Location:	329 High Street	Total Depth:	10'	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
2			B-6	0-5'	N/A	60"/21"	Brown-Red Fine to medium Sand and silt with some gravel	0
4								
6			B-6*	5-10'	N/A	60"/43"	Grey-green Fine Sand and silt	1,317
8								
10							End of Exploration	
12								
14								
16								
18								
20								

* - sample taken for laboratory analysis

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG:

B-7

Location:	329 High Street	Total Depth:	10'	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
2			B-7	0-5'	N/A	60"/24"	Brown-Red Fine to medium Sand and silt with some gravel	35
4								
6			B-7*	5-10'	N/A	60"/48"	Grey-green Fine Sand and silt	671
8								
10							End of Exploration	
12								
14								
16								
18								
20								

* - sample taken for laboratory analysis

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG:

B-8

Location:	329 High Street	Total Depth:	10'	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
2			B-8	0-5'	N/A	60"/20"	Brown-Red Fine to medium Sand and silt with some gravel	0
4								
6			B-8	5-10'	N/A	60"/26"	Grey-green Fine Sand and silt	359
8								
10							End of Exploration	
12								
14								
16								
18								
20								

* - sample taken for laboratory analysis

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG: B-9

Location:	329 High Street	Total Depth:	10'	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
2			B-9	0-5'	N/A	60"/28"	Brown-Red Fine to medium Sand and silt with some gravel	0
4								
6			B-9*	5-10'	N/A	60"/49"	Grey-green Fine Sand and silt	2,704
8								
10							End of Exploration	
12								
14								
16								
18								
20								

* - sample taken for laboratory analysis

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG: B-10

Location:	329 High Street	Total Depth:	10	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
2			B-10	0-5'	N/A	60"/24"	Brown-Red Fine to medium Sand and silt with some gravel	0
4								
6			B-10	5-10'	N/A	60"/41"	Grey-green Fine Sand and silt	369
8								
10							End of Exploration	
12								
14								
16								
18								
20								

* - sample taken for laboratory analysis

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG: B-11

Location:	329 High Street	Total Depth:	10	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
2			B-11	0-5'	N/A	60"/19"	Brown-Red Fine to medium Sand and silt with some gravel	0
4								
6			B-11	5-10'	N/A	60"/28"	Grey-green Fine Sand and silt	234
8								
10							End of Exploration	
12								
14								
16								
18								
20								

* - sample taken for laboratory analysis

Parker Environmental

Creative Solutions for a Complicated Environment

P.O. Box 583 Clinton MA 01510

Phone: (978) 273-4263 - Fax: (978) 365-9378

DRILLING LOG: B-12

Location:	329 High Street	Total Depth:	10	Water Level:	NA
Project:	Clinton	Screen Length:	N/A	Notes:	
Client:		Diameter:	N/A		Testing consists of PID headspace response (ppmv)
Drilling Company:	Geosearch, Inc.	Type:	N/A		
Driller:		Slot Size:	N/A		
Method:	GeoProbe	Casing Length:	N/A		
Date Start:	6/14/2019	Diameter:	N/A		
Date End:		Type:	N/A		
Logged By:	PP	Checked By:	SKP		

Depth (feet)	Well Construction	Key	Sample				Sample Description	ppmv
			ID	Depth	Blows/6"	Pen/Rec		
0	No Well Set						Pavement	
2			B-12	0-5'	N/A	60"/31"	Brown-Red Fine to medium Sand and silt with some gravel	5.2
4								
6			B-12*	5-10'	N/A	60"/47"	Grey-green Fine Sand and silt	1,150
8								
10							End of Exploration	
12								
14								
16								
18								
20								

* - sample taken for laboratory analysis

APPENDIX E
DISPOSAL DOCUMENTATION

22 Industry Road, Chicopee, MA 01020

6/27/19

1:49 PM

Arrival Time: _____ Depart Time: _____

	Today	To Date
Loads	1	1
Qty	14.63	14.63

NOTICE TO PURCHASERS: The Purchaser, through their officer, principal, employee or agent, hereby acknowledges that in consideration of the purchase and loading of product from Ted Ondrick Construction Company, hereafter referred to as Seller, the Purchaser agrees that SELLER'S LIABILITY, IN TORT, IN NEGLIGENCE OR OTHERWISE SHALL BE LIMITED TO THE AMOUNT OF THE PURCHASE PRICE OF THE SELLER'S PRODUCT AND UNDER NO CIRCUMSTANCE SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES arising out of the fact that the vehicle loaded by the seller for the purchaser was loaded in excess of its permitted and certified capacity. Purchaser, through their officer, principal, employee or agent, further agrees in consideration of the purchase and loading of Seller's product, TO RELEASE, REMISE AND FOREVER DISCHARGE THE SELLER, ITS REPRESENTATIVES, SUCCESSORS AND ASSIGNS OF AND FROM ANY AND ALL DEBTS, DEMANDS, ACTIONS, CAUSES OF ACTION, SUITS, PRECEDINGS, AGREEMENTS, CONTRACTS, JUDGEMENTS, DAMAGES, EXECUTIONS, CLAIMS AND LIABILITIES WHATSOEVER OF EVERY NATURE AND NAME, WHETHER KNOWN OR UNKNOWN, WHETHER IN LAW OR IN EQUITY, WHICH THE PURCHASER HAS OR MAY HAVE FOR ANY REASON, MATTER OR CAUSE, AND PURCHASER FURTHER INDEMNIFIES AND HOLDS SELLER HARMLESS FROM ANY LOSS, COST, EXPENSE, DAMAGE, OR ATTORNEY'S FEES ARISING OUT OF THE SELLER'S LOADING OF ANY VEHICLE FOR THE PURCHASER IN EXCESS OF ITS PERMITTED AND CERTIFIED CAPACITY

CAUTION: HOT MATERIAL (275°F-325°F) Avoid contact with skin & eyes - Thermal Burns could result. Fumes could cause nausea or irritation. Seek proper medical assistance in all emergencies. Consult Material Safety Data Sheet for more information. **KNOW & RESPECT THE PRODUCTS YOU HANDLE.**



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING Transport Log Sheet

Page _____ OF _____

Release Tracking Number

-

I. LOAD INFORMATION:

Load 1:

Date of Shipment:

6-27-19

Truck/Tractor Registration:

68195

Signature of Transporter Representative:

[Signature]

Time of Shipment:

1215

☐ AM

☒ PM

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

DWS

Date of Receipt:

6-27-19

Time of Receipt:

136

☐ AM

☒ PM

Load Size (cu. yds./tons):

14.63

Load 2:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

☐ AM

☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

☐ AM

☐ PM

Load Size (cu. yds./tons):

Load 3:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

☐ AM

☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

☐ AM

☐ PM

Load Size (cu. yds./tons):

Load 4:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

☐ AM

☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

☐ AM

☐ PM

Load Size (cu. yds./tons):

Load 5:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

☐ AM

☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

☐ AM

☐ PM

Load Size (cu. yds./tons):

Load 6:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment:

☐ AM

☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

☐ AM

☐ PM

Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons)

Total Carried Forward (cu. yds./tons):

Total Carried Forward and This Page (cu. yds./tons):

Ondrick Materials & Recycling, LLC

22 Industry Road, Chicopee, MA 01020

Ticket

6/28/19

315007

3:43 PM


Truck ID GEOSEARCH43 GEOSEARCH43

Customer Order 10125 W. L. French Excavating Corporatio
19-06-G-6103MA Former Genes Towing, 329 High St

P.O. T19-0204

Product OIL MA

Site Addr. Former Genes Towing
329 High St.
Clinton

Driver: 

Customer: _____

Arrival Time: _____ **Depart Time:** _____

Gross	58380 Lb	
Tare	25000 Lb	*
<hr/>		
Net	16.69 Ton	
<hr/>		
	Today	To Date
Loads	4	5
Qty	84.06	98.69

NOTICE TO PURCHASERS: The Purchaser, through their officer, principal, employee or agent, hereby acknowledges that in consideration of the purchase and loading of product from Ted Ondrick Construction Company, hereafter referred to as Seller, the Purchaser agrees that SELLER'S LIABILITY, IN TORT, IN NEGLIGENCE OR OTHERWISE SHALL BE LIMITED TO THE AMOUNT OF THE PURCHASE PRICE OF THE SELLER'S PRODUCT AND UNDER NO CIRCUMSTANCE SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES arising out of the fact that the vehicle loaded by the seller for the purchaser was loaded in excess of its permitted and certified capacity. Purchaser, through their officer, principal, employee or agent, further agrees in consideration of the purchase and loading of Seller's product, TO RELEASE, REMISE AND FOREVER DISCHARGE THE SELLER, ITS REPRESENTATIVES, SUCCESSORS AND ASSIGNS OF AND FROM ANY AND ALL DEBTS, DEMANDS, ACTIONS, CAUSES OF ACTION, SUITS, PRECEEDINGS, AGREEMENTS, CONTRACTS, JUDGEMENTS, DAMAGES, EXECUTIONS, CLAIMS AND LIABILITIES WHATSOEVER OF EVERY NATURE AND NAME, WHETHER KNOWN OR UNKNOWN, WHETHER IN LAW OR IN EQUITY, WHICH THE PURCHASER HAS OR MAY HAVE FOR ANY REASON, MATTER OR CAUSE, AND PURCHASER FURTHER INDEMNIFIES AND HOLDS SELLER HARMLESS FROM ANY LOSS, COST, EXPENSE, DAMAGE, OR ATTORNEY'S FEES ARISING OUT OF THE SELLER'S LOADING OF ANY VEHICLE FOR THE PURCHASER IN EXCESS OF ITS PERMITTED AND CERTIFIED CAPACITY

CAUTION: HOT MATERIAL (275°F-325°F) Avoid contact with skin & eyes - Thermal Burns could result. Fumes count cause nausea or irritation. Seek proper medical assistance in all emergencies. Consult Material Safety Data Sheet for more information. **KNOW & RESPECT THE PRODUCTS YOU HANDLE.**

Ondrick Materials & Recycling, LLC

22 Industry Road, Chicopee, MA 01020

Ticket

6/28/19

315001

3:04 PM


Truck ID CNAUGHTON10 CNAUGHTON10

Customer Order 10125 W. L. French Excavating Corporatio
19-06-G-6103MA Former Genes Towing, 329 High St

P.O. T19-0204

Product OIL MA

Site Addr. Former Genes Towing
329 High St.
Clinton

Driver: 

Customer: _____

Arrival Time: _____ **Depart Time:** _____

Gross	78840 Lb	*
Tare	30500 Lb	*
	<hr/>	
Net	24.17 Ton	*
	Today	To Date
	<hr/>	<hr/>
Loads	3	4
Qty	67.37	82.00

NOTICE TO PURCHASERS: The Purchaser, through their officer, principal, employee or agent, hereby acknowledges that in consideration of the purchase and loading of product from Ted Ondrick Construction Company, hereafter referred to as Seller, the Purchaser agrees that SELLER'S LIABILITY, IN TORT, IN NEGLIGENCE OR OTHERWISE SHALL BE LIMITED TO THE AMOUNT OF THE PURCHASE PRICE OF THE SELLER'S PRODUCT AND UNDER NO CIRCUMSTANCE SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES arising out of the fact that the vehicle loaded by the seller for the purchaser was loaded in excess of its permitted and certified capacity. Purchaser, through their officer, principal, employee or agent, further agrees in consideration of the purchase and loading of Seller's product, TO RELEASE, REMISE AND FOREVER DISCHARGE THE SELLER, ITS REPRESENTATIVES, SUCCESSORS AND ASSIGNS OF AND FROM ANY AND ALL DEBTS, DEMANDS, ACTIONS, CAUSES OF ACTION, SUITS, PRECEEDINGS, AGREEMENTS, CONTRACTS, JUDGEMENTS, DAMAGES, EXECUTIONS, CLAIMS AND LIABILITIES WHATSOEVER OF EVERY NATURE AND NAME, WHETHER KNOWN OR UNKNOWN, WHETHER IN LAW OR IN EQUITY, WHICH THE PURCHASER HAS OR MAY HAVE FOR ANY REASON, MATTER OR CAUSE, AND PURCHASER FURTHER INDEMNIFIES AND HOLDS SELLER HARMLESS FROM ANY LOSS, COST, EXPENSE, DAMAGE, OR ATTORNEY'S FEES ARISING OUT OF THE SELLER'S LOADING OF ANY VEHICLE FOR THE PURCHASER IN EXCESS OF ITS PERMITTED AND CERTIFIED CAPACITY

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Ondrick Materials & Recycling, LLC

22 Industry Road, Chicopee, MA 01020

Ticket

6/28/19

314938

10:59 AM


Truck ID GEOSEARCH43 GEOSEARCH43

Customer Order 10125 W. L. French Excavating Corporatio
19-06-G-6103MA Former Genes Towing, 329 High St

P.O. T19-0204

Product OIL MA

Site Addr. Former Genes Towing
329 High St.
Clinton

Driver: 

Customer: _____

Arrival Time: _____ **Depart Time:** _____

Gross	67400 Lb	*
Tare	25000 Lb	*
Net	21.20 Ton	*
	<hr/>	
	Today	To Date
Loads	2	3
Qty	43.20	57.83

NOTICE TO PURCHASERS: The Purchaser, through their officer, principal, employee or agent, hereby acknowledges that in consideration of the purchase and loading of product from Ted Ondrick Construction Company, hereafter referred to as Seller, the Purchaser agrees that SELLER'S LIABILITY, IN TORT, IN NEGLIGENCE OR OTHERWISE SHALL BE LIMITED TO THE AMOUNT OF THE PURCHASE PRICE OF THE SELLER'S PRODUCT AND UNDER NO CIRCUMSTANCE SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES arising out of the fact that the vehicle loaded by the seller for the purchaser was loaded in excess of its permitted and certified capacity. Purchaser, through their officer, principal, employee or agent, further agrees in consideration of the purchase and loading of Seller's product, TO RELEASE, REMISE AND FOREVER DISCHARGE THE SELLER, ITS REPRESENTATIVES, SUCCESSORS AND ASSIGNS OF AND FROM ANY AND ALL DEBTS, DEMANDS, ACTIONS, CAUSES OF ACTION, SUITS, PRECEEDINGS, AGREEMENTS, CONTRACTS, JUDGEMENTS, DAMAGES, EXECUTIONS, CLAIMS AND LIABILITIES WHATSOEVER OF EVERY NATURE AND NAME, WHETHER KNOWN OR UNKNOWN, WHETHER IN LAW OR IN EQUITY, WHICH THE PURCHASER HAS OR MAY HAVE FOR ANY REASON, MATTER OR CAUSE, AND PURCHASER FURTHER INDEMNIFIES AND HOLDS SELLER HARMLESS FROM ANY LOSS, COST, EXPENSE, DAMAGE, OR ATTORNEY'S FEES ARISING OUT OF THE SELLER'S LOADING OF ANY VEHICLE FOR THE PURCHASER IN EXCESS OF ITS PERMITTED AND CERTIFIED CAPACITY

CAUTION: HOT MATERIAL (275°F-325°F) Avoid contact with skin & eyes - Thermal Burns could result. Fumes count cause nausea or irritation. Seek proper medical assistance in all emergencies. Consult Material Safety Data Sheet for more information. KNOW & RESPECT THE PRODUCTS YOU HANDLE.

Ondrick Materials & Recycling, LLC

22 Industry Road, Chicopee, MA 01020

Ticket

6/28/19

314928

10:29 AM


Truck ID CNAUGHTON10 CNAUGHTON10

Customer Order 10125 W. L. French Excavating Corporatio
19-06-G-6103MA Former Genes Towing, 329 High St

P.O. T19-0204

Product OIL MA

Site Addr. Former Genes Towing
329 High St.
Clinton

Driver: 

Customer: _____

Arrival Time: _____ **Depart Time:** _____

Gross	74500 Lb	*
Tare	30500 Lb	*
Net	22.00 Ton	*
	Today	To Date
Loads	1	2
Qty	22.00	36.63

NOTICE TO PURCHASERS: The Purchaser, through their officer, principal, employee or agent, hereby acknowledges that in consideration of the purchase and loading of product from Ted Ondrick Construction Company, hereafter referred to as Seller, the Purchaser agrees that SELLER'S LIABILITY, IN TORT, IN NEGLIGENCE OR OTHERWISE SHALL BE LIMITED TO THE AMOUNT OF THE PURCHASE PRICE OF THE SELLER'S PRODUCT AND UNDER NO CIRCUMSTANCE SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES arising out of the fact that the vehicle loaded by the seller for the purchaser was loaded in excess of its permitted and certified capacity. Purchaser, through their officer, principal, employee or agent, further agrees in consideration of the purchase and loading of Seller's product, TO RELEASE, REMISE AND FOREVER DISCHARGE THE SELLER, ITS REPRESENTATIVES, SUCCESSORS AND ASSIGNS OF AND FROM ANY AND ALL DEBTS, DEMANDS, ACTIONS, CAUSES OF ACTION, SUITS, PRECEEDINGS, AGREEMENTS, CONTRACTS, JUDGEMENTS, DAMAGES, EXECUTIONS, CLAIMS AND LIABILITIES WHATSOEVER OF EVERY NATURE AND NAME, WHETHER KNOWN OR UNKNOWN, WHETHER IN LAW OR IN EQUITY, WHICH THE PURCHASER HAS OR MAY HAVE FOR ANY REASON, MATTER OR CAUSE, AND PURCHASER FURTHER INDEMNIFIES AND HOLDS SELLER HARMLESS FROM ANY LOSS, COST, EXPENSE, DAMAGE, OR ATTORNEY'S FEES ARISING OUT OF THE SELLER'S LOADING OF ANY VEHICLE FOR THE PURCHASER IN EXCESS OF ITS PERMITTED AND CERTIFIED CAPACITY

CAUTION: HOT MATERIAL (275°F-325°F) Avoid contact with skin & eyes - Thermal Burns could result. Fumes could cause nausea or irritation. Seek proper medical assistance in all emergencies. Consult Material Safety Data Sheet for more information. **KNOW & RESPECT THE PRODUCTS YOU HANDLE.**



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING Transport Log Sheet

Page _____ OF _____

Release Tracking Number

-

I. LOAD INFORMATION:

Load 1:

Date of Shipment:

6-28-19

Signature of Transporter Representative:

Time of Shipment:

915

☒ AM ☐ PM

Truck/Tractor Registration:

T18991

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

6-28-19

Time of Receipt:

1028

☒ AM ☐ PM

Load Size (cu. yds./tons):

22.00

Load 2:

Date of Shipment:

6-28-19

Signature of Transporter Representative:

Time of Shipment:

930

☒ AM ☐ PM

Truck/Tractor Registration:

68195

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

6-28-19

Time of Receipt:

1057

☒ AM ☐ PM

Load Size (cu. yds./tons):

21.20

Load 3:

Date of Shipment:

6-28-19

Signature of Transporter Representative:

Time of Shipment:

1200

☐ AM ☒ PM

Truck/Tractor Registration:

T18991

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

6-28-19

Time of Receipt:

303

☐ AM ☒ PM

Load Size (cu. yds./tons):

24.17

Load 4:

Date of Shipment:

6-28-19

Signature of Transporter Representative:

Time of Shipment:

130

☐ AM ☒ PM

Truck/Tractor Registration:

68195

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

6-28-19

Time of Receipt:

342

☐ AM ☒ PM

Load Size (cu. yds./tons):

16.69

Load 5:

Date of Shipment:

Time of Shipment:

☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 6:

Date of Shipment:

Time of Shipment:

☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt:

☐ AM ☐ PM

Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons)

Total Carried Forward (cu. yds./tons):

Total Carried Forward and This Page (cu. yds./tons):